

PREHISTORIC MAN  
*of the*  
SANTA BARBARA COAST

---

*DAVID BANKS ROGERS*







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# PREHISTORIC MAN

OF THE  
SANTA BARBARA COAST

*By*  
DAVID BANKS ROGERS

A synopsis of the results of four years of intensive investigation, conducted by the author for the Museum of Natural History of Santa Barbara, California, among the now rapidly vanishing remains of villages that in former times occupied the Santa Barbara Valley.

1929

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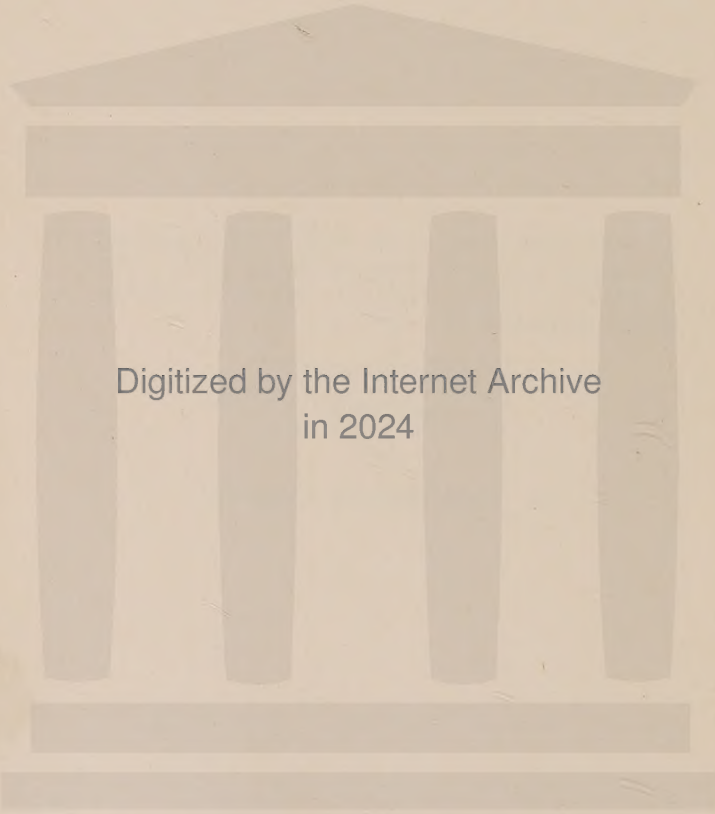
*In acknowledgement of his many acts of personal  
friendship, and of his staunch loyalty to the cause  
of scientific research during the days of its infancy  
in this institution,*

*this volume is gratefully*

*dedicated*

*to*

DR. JOHN GEORGE GEHRING



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I. ILLUSTRATIONS

Please make the following changes in the references to certain plates in Rogers' "Prehistoric Man of Santa Barbara Coast."

- Reference, page 43, "Plate 95," should be Plate 61 (bottom), facing page 370
- Reference, page 55 "Plate 81," should be Plate 53 (top), facing page 342
- Reference, page 115, "Plate 96," should be Plate 8, facing page 114
- Reference, page 172, "Table, page 422," should be Table, page 433.
- Reference, page 192, "Plate 17," should be Plate 16 (bottom), facing page 183
- Reference, page 211, "Plate 19," should be Plate 18 (bottom), facing page 207
- Reference, page 214, "Plate 21," should be Plate 19 (top), facing page 214
- Reference, page 220, "Plate 22 & 23," should be Plate 19 (bot.) & 20 (top), facing page 214
- Reference, page 230, "Plate 23," should be Plate 22 (top), facing page 231
- Reference, page 231, "Plate 27," should be Plate 22 (bottom), facing page 231
- Reference, page 242, "Plate 31," should be Plate 26, facing page 243
- Reference, page 243, "Plate 82," should be Plate 53 (bottom), facing page 342
- Reference, page 293, "Plates 42 & 43," should be Plate 34, facing page 291
- Plate No. 14, facing page 178, is wrongly named. "No. 1" should be No. 2.

In list of illustrations, (page VIII), "No. 1" should be changed to No. 2, to meet the requirements of last correction above.

*These corrections have been made*



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## PREFACE

THE scope of this monograph is not wide, nor are its contents at all startling. The writer trusts, however, that his work in a rich but difficult field has added a little to the sum of anthropological knowledge. Some of the material presented is entirely new and will tend to modify previous views of the people who constitute the subject of our investigation.

Leaving to ethnologists the task of collecting the scattered fragments of the language of the prehistoric Barbariño and the selection of the proper names for the village sites, this report will be largely confined to the archæological side of the subject.

The results of the writer's investigations are preceded by a brief summary of the earlier material bearing on the subject. In the records of the Mission and in private libraries are valuable details of past history. Thanks are here extended to all those who have allowed the writer access to these sources. Current histories have also been freely drawn upon. Chief among these is the monumental work of Father Zephyrin Engelhardt, the historian of the Mission.

Everyone interested in archæology, and particularly in the local field, owes an immense debt of gratitude to the small group of enthusiastic and far-sighted men who initiated the work of investigation and carried it through its initial stages. Dr. J. G. Gehring, Mr. William Bingham 2nd, Mr. H. S. Gladwin, and Rev. George F. Weld, through their personal interest and financial support are directly responsible for the beginnings which have resulted in the collections exhibited in the Gould Wing and in the material presented in this monograph.

In his field work the writer has met almost universal welcome, and the list of those who have aided him in every manner is long. Among those whose help has been outstanding should be mentioned Mrs. J. A. Kimberley, the Messrs. Thomas Murphine, Jacob Shoup, F. L. Birabent, J. P. Harrington, John and James Catlin, Lucien Higgins, Tod Oviatt, John Fesler, J. F. Hurlbut, Owen O'Neill, C. L. Preisker, John Glines, Frank Bishop, Robert Main,

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As the material comprised in this monograph is a compilation of the results of researches conducted by the writer over a series of years, acting at different times for various institutions, he has not confined himself to the work done for the Museum of Natural History, but has attempted a summary of all his work, giving due credit to those who have made this survey possible.

Early in 1923, Mr. J. P. Harrington was engaged by the Museum of the American Indian, of New York City, to carry on archæological investigations at Burton Mound, in the city of Santa Barbara. The writer was associated with Mr. Harrington during the whole period of this investigation. At the close of the year 1923, the property changed hands and our activities came to an end.

The writer was then instructed by the Ethnological Department of the Smithsonian Institution to make a detailed exploration, with maps and photographs, of all known former village sites in the vicinity, the intent being to carry on extensive excavations here, if the superficial indications warranted.

At this point the Santa Barbara Museum of Natural History took up the work. At first the Museum's budget permitted only a short period of work each year, but from February, 1925, to February, 1927, the field work was carried on without interruption, except by occasional inclement weather.

The opening of the Gould Wing and the exhibition of the material collected on the mainland brought together a number of those especially interested in archæological investigation. The connection of the culture represented on the Channel Islands with that of the mainland and the need of some further knowledge of the conditions prevailing in the allied field was pointed out on

this occasion. Support was ultimately secured from a group whose names appear below.† The work of investigation which followed is described in the chapter in this monograph devoted to the Channel Islands.

The most important contribution which this investigation has made to the knowledge of the California Indian is the evidence that the region under discussion has been occupied by at least three peoples who differed widely in the times of their arrival on the scene, in their modes of life, and perhaps in their racial affinities. It has been hitherto a generally accepted belief that there have been no cultural sequences in the area now included in the state of California.

---

†The following friends of the museum made the exploration of the Islands possible:

Andrews, Mrs. J. A.  
Bissell, Dr. E. J.  
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Dreyfus, Mr. Louis G.  
Duane, Mr. William N.  
Edwards, Mr. George S.  
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Gavit, Mr. E. Palmer  
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\*Gray, Mr. David  
Ludington, Mr. C. H.  
Murphy, Mr. Dwight  
Myrick, Mr. Donald  
Nelson, Mr. William P.  
Nelson, Mrs. William P.  
\*Peabody, Mr. F. F.  
Thorne, Mr. Oakleigh  
Tuckerman, Mr. Wolcott  
Wright, Mr. John D.

\*Deceased.



## CHAPTER I

### HISTORY, TRADITION AND ROMANCE

UP to the present time little was known among anthropologists of the people who had occupied Santa Barbara County, California, in prehistoric times, and this little was chiefly in the form of tradition. We knew that a numerous people had once occupied the land, living an idyllic life, and that later they had totally disappeared. The chief chronicle of the final chapter of their existence is preserved upon the fading pages of the Baptismal and Death Records of the Santa Barbara Mission. No concise treatise upon the racial affiliations of this people has come to our hand. Weeks of intensive research through every available source, served only to impress upon the writer the inadequacy of existing records. That the readers of this paper may be able to follow logically the results of the field activities and the conclusions drawn from our investigations, we have presented in a condensed form the historic material previously known.

Our knowledge of the former inhabitants of the shores of the Santa Barbara Channel naturally begins with their discovery by the Spaniards, about fifty years after the discovery of the eastern shores of the American continent.

In the fall of the year 1542, the tranquil existence of the villagers that dwelt along this coast line was thrown into confusion by the appearance off shore of two great, strange, winged objects, the like of which their wildest flights of fancy had never conjured up. These mysterious monsters were actually two small, poorly-built caravels, the *San Salvador* and the *La Victoria*, manned by convicts and riffraff, and commanded by Juan Rodriguez Cabrillo, a Portuguese by birth but at this time in the service of Spain. His journal records many items bearing upon the characteristics of the natives.

We naturally find in this journal a few errors due to misinterpretation and faulty orthography. For instance, in the entry of October 10th, we read: "and they made signs that in

that valley there was much maize." From our present knowledge that no maize had been grown in the region at that time, we may readily explain the error by supposing that the native sign for "abundant food" had been misconstrued by Spaniards to mean "much maize." Again on the 15th of October, is recorded "much maize at three days distance," and also that there were many "cows." The mention of these animals was probably owing to a misinterpretation of the Indians' sign for elk or possibly bison.

We believe that another error persists in modern translations of this same day's journal, due to the omission or erasure of a diacritical mark. As the translation now stands, speaking of the Carpenteria Valley, he wrote on October 15: "they have many cabins." As no such structures have since been mentioned and as no other evidence is available that they ever did exist, I believe that we are justified in believing that the word "cavanas" (cabanas—cabins) in the original manuscript lacks the diacritical mark upon the first letter that would have entirely changed the meaning of the sentence. It would then have stood "çavanas" (sabanas-savanas), grassy plains, a word in complete accord with the landscape that it purports to describe.

In spite of such trifling errors, we nevertheless look upon Cabrillo's journal as one of the greatest, if not the greatest, authentic extant contribution to our knowledge of the early Canaliño. The crude methods of obtaining their bearings which prevailed in Cabrillo's day make the task of definitely locating the places mentioned an almost hopeless one. In spite of these handicaps, Cabrillo has left a precious legacy of information that brings the Channel and its inhabitants as he found them vividly before our eyes.

We see the coast densely populated with a childlike friendly race who clothed themselves scantily in the skins of various animals and lived in semi-globular huts that were thatched to the ground, in contrast to those found in the tropics, where the sides are left uncovered for ventilation's sake. The journal further states that sometimes as many as fifty people lived in a single hut. We also learn that the sea furnished a large portion of their sustenance. They also utilized acorns and a small, unnamed seed from which they fashioned "most excellent tamales."

A dense population extended from the Rincon to Point Con-

ception, and from each of the villages there came fleets of great sea-worthy canoes to greet the newcomers and to barter fish for unknown commodities. It was no uncommon thing to have these canoes in attendance for leagues at a stretch. Cabrillo remarks that these seamen wore their hair long and tied it with thongs decorated with daggers of flint, bone and wood.

Apparently the journalist was tireless in his efforts to secure the names of the villages seen, and scores of names have been thus preserved, but unfortunately few clues are given by which we may attach a given name to any particular site. With a few exceptions, where names have been definitely attached to described localities, the great mass of carefully compiled names of villages is worthless.

Cabrillo gives this people credit for a much more complicated political organization than we have any later evidence for. He definitely mentions that all of the villages to the west from Cicaut were ruled by an elderly woman who resided at the capital, Ciucut. This "queen" came aboard the *San Salvador* and remained two days and nights. Another principality is said to have extended from this lady's realm to the Rincon.

These Indians were astounded at the appearance of the caravels, and doubtless had never heard of such vessels. They had, however, received detailed accounts of the appearance of the white men, and with great glee signified that far to the east was a column of men with beards, who wore clothing and armor. There can be but one explanation of this. Through runners and the sign language, word had reached this coastal people, from the deserts of Arizona, that Coronado had passed through there two years before.

Of the island population Cabrillo appears to think little. He is positive in the assertion that they went unclothed and slept upon the ground, and as a whole were swinish in their habits. He states that they lived exclusively on fish.

A brief and simple enough chronicle, yet it fairly pulsates with reality. We must not lose sight of the fact that the voyage was no summer day pastime. The intrepid Cabrillo, around whom the entire enterprise centered, had been seriously injured in a perilous landing, and after weeks of torture, resulting from lack of proper medical attention, died and was buried in a now forgotten grave on San Miguel Island.

A period of many years elapse before we again have authentic records bearing upon this region.

In the year 1602 a well-organized expedition, under the able leadership of Don Sebastian Vizcaino, aboard the three frigates San Diego, San Tomas and Los Tres Reyes and accompanied by a supply transport, entered the Santa Barbara Channel on December 4th, the natal day of the saint whose name the waterway has since borne. Other names that have endured to the present day were attached to the chief points of interest along the route by the geographers of this expedition.

A period of tempestuous weather, that included a protracted "south-easter," made landings inadvisable, except at a few sheltered harbors; hence contact with the natives was negligible and comments upon them equally so. The return of the fleet through the Channel, during the spring of 1603, led to no comment whatever upon the inhabitants of the region.

There is a lapse of over a century and a half before this vicinity is again mentioned by the early chroniclers, although there is abundant reason to suspect that in the interim there had been intermittent contacts between Europeans and the Canaliños, but of a nature that did not lend itself to systematic recording. Traders, slavers or pirates, any or all might easily have bequeathed the legacy of disorganization, disease and racial decay that is to be noted at the time of the advent of the padres, without leaving other visible evidence of their visits.

August 16, 1769, sees the turning of a new leaf in the annals of our region. On that day, Captain Gaspar de Portola at the head of an exploring party of sixty-five leather-jacketed soldiers and accompanied by two Franciscan friars, Juan Crespi and Francisco Gomez, camped near a large Indian village at the mouth of Rincon Creek, upon the eastern border of the territory to be considered in this paper. We are indebted to the careful notes of Fr. Crespi for many interesting sidelights upon the customs of the natives of that period.

This column of soldiers and priests marched slowly along the entire length of the region under discussion, and camped at notable points easily located at this day from Crespi's descriptions. Among these places are Carpenteria, Santa Barbara, Arroyo Burro, Mores Ranch and Gaviota.

Following Portolá's pioneers in quick succession came several other expeditions, not all of which were accompanied by historians. However, on February 24, 1776, there arrived at the now much visited village of Xucu (Shukū), at the mouth of Rincon Creek, an expedition under the command of Colonel Juan Bautista Anza. Accompanying this body was a Franciscan friar from Sonora, Pedro Font, who in his "Diario" fearlessly discusses many features of these exploring ventures that through fear, oversight or motives of policy, had been omitted by those who had trodden the path before him. From his pen we obtain additional light upon native modes of life.

The above, I believe, sums up the principal sources of first hand information upon the life of the Canaliño, until the time that the mission-building Padres wrote the annals of their neophytes.

From the above mentioned chronicles we are enabled to piece together the following picture of the now vanished race, as they appeared to the first Europeans with whom they came in contact. In later chapters we have endeavored, through a detailed study of the culture of this race, not only to corroborate or refute the earlier accounts but also to amplify them by evidences of additional activities.

This people seems to have made a special appeal to the early explorers, for these apparently applied none of those harsh measures toward them that were of such frequent occurrence in other parts of the newly discovered continent. From the first advent of the Spaniard in California, he was met by a hearty welcome, quite different from the aloofness and suspicion that had confronted his entry elsewhere. The Indians had rushed to greet Cabrillo, and, at a much later date, the first land forces of the invaders were met with a welcome that at times became oppressive. The smiling, childlike natives fairly surfeited Portolá's retinue with supplies. Carefree dancers and musicians continued to pour in upon them from adjoining villages, engaging in contests of entertainment until, as Fr. Crespi relates, "we dismissed them, begging them by signs not to come back during the night and trouble us. But in vain. As soon as darkness set in they returned." Abounding cheerfulness and a natural tendency towards the dance as a means of expression, appear to have been their most outstanding traits.

The great sea-going boats of these Indians seem to have been the second feature to catch the eye of the Spanish mariners. It is most regrettable that no specimen of this craft has been preserved for us to study. This native "tomolo" was formed of pieces of plank, lashed together with thongs run through eyelets near the edge of each piece, the seams of which were later calked with hot asphaltum. It is known to have measured somewhat over twenty feet in length, with approximately a four-foot beam at the center, narrowing rapidly toward each end. The depth is conjectural, but was probably not less than two feet, as the craft was eminently sea-worthy. The Indians frequently crossed the channel that lies between the mainland and the islands, although, judging from their absence from the sea during the rough weather encountered by Vizcaíno's fleet, they appear to have practiced due caution in the selection of times to venture forth. The boat curved slightly upward toward the ends, which were strengthened by upright stern and prow posts of uncertain height. This craft, reconstructed from the meager data left to us, is reminiscent of boats still to be found in parts of the South Seas, and entirely different from anything found elsewhere in America.

The early reports differ somewhat as to the crew and passenger capacity of the Canaliño boat. One reports that "two man the boat," while another speaks of from thirteen to twenty passengers. Such a load appears to have been far too great, while in the former instance two paddlers would seem entirely inadequate properly to manipulate so unwieldy a craft. Probably the normal boat-load lies somewhere between these two statements. The early historians do, however, agree that the owner of each boat was distinguished from his fellows by the wearing of an ornamental cape over the shoulders.

As an example of the early mention of the native craft, that misses completeness by a tantalizingly narrow margin, we quote from perhaps the most explicit record, that of Constanso, who writes in 1769:

"The expertness and skill of these Indians is unsurpassed in the construction of their canoes of pine boards. They are from eight to ten yards in length, from stem to stern-post, and one yard and a half in breadth. No iron whatever enters into their construction, and they know little of its use. But they fasten the boards firmly together, making holes at equal

distances apart, one inch from the edge, matching each other in the upper and lower boards, and through these holes they pass stout thongs of deer sinews. They pitch and calk the seams, and paint the whole with bright colors. They handle them with equal skill, and three or four men go out to sea to fish in them, and they will hold eight or ten (men)."

Vizeaiño adds to this description slightly by stating on December 2, 1602:

" . . . a canoe came out to us with two Indian fishermen rowing so swiftly that they seemed to fly. . . . After they had gone, five Indians in another canoe, so well constructed that since Noah's Ark, a finer and lighter vessel, with timbers better made, had not been seen. Four men rowed, with an old man in the center, singing as in a 'mitote' of the Indians of New Spain, and the others responding to him."

Early reports on the apparel of the period also differ greatly, ranging from references to the stark nudity of the "pagans" to statements of their being "clothed in skins"; I think it probable that the amount of clothing in use varied with the climatic demands.

Their dwellings are lightly touched upon, and again there are disparities in the descriptions, especially with regard to the size of the structures. One writer, apparently in all honesty, states that the dome-shaped dwellings were "fifty feet in diameter." Such a "jacale" would demand an impossible outlay of labor and skill in the securing, transportation and erection of the requisite massive timbers.

Considerable caution should be used before we accept the comments of the early writers upon the various phases of the social, religious, political and domestic life of the natives. There appears to have been no effort to exaggerate or to pervert, but as studies in ethnology, these records prove anything but satisfactory. For instance, frequent mention is made of burial customs, and in the description of the burial plot, details are often introduced that, I believe, properly belong to other ceremonial centers, such as the dance platform, or the council enclosure. These centers of village activities were invariably closely adjacent and might easily have been confused.

In this connection I might also add that the observances of strange rites would lend themselves to various interpretations, dependent upon the observer. It is also conceivable that there

was a great variety in the ceremonial observances of different villages, and that even the same rites differed somewhat in their details. All this would have tended to confuse an untrained historian.

Apparently no effort was made in these early contacts with the yet unspoiled race to obtain a knowledge of its past history or religious beliefs, or to compile a vocabulary of the various dialects encountered. These were said to have varied greatly, even in adjoining villages, and to have been unintelligible to those a few leagues away. In spite of the unwarlike character of the weapons found in the later Canaliño graves, we have evidence that bitter feuds existed between some of the villages.

These early records have proved very tantalizing to later ethnologists. In the majority of instances they are little more than dim silhouettes lacking the definiteness, substance, perspective, dimension, color and detail that are so essential in re-creating the life of a vanished race.

We now come to the second phase of the activities of the Europeans in their relations to the native population. I refer to the period marked by the founding and establishment of the missions, by the attendant occupation of the land by garrisons, and by political intrigues.

The reports that reached the king of Spain of the teeming population of Alta California, all immersed in darkest paganism, aroused in him a zeal to gather into the church these throngs of potential neophytes. Every encouragement was offered to the work of conversion, and the Franciscan brotherhood, who had recently superseded the Jesuit fathers in the field of New Spain, rose nobly to the occasion.

Few in numbers and with a vast scope of territory as their field of labor, practically cut off from the rest of the world and dependent upon their own efforts for every necessity of life, the majority of these early missionaries died at their posts. It is plain that motives of the highest order alone actuated these self-sacrificing brothers.

Fr. Palon says, in 1778, speaking of Fr. Serra:

“ . . . his heart bled at the sight of the thousands of Indians between San Gabriel and San Luis Obispo who were

as yet excluded from the benefits that the neophytes of the mission enjoyed."

At length, in 1782, after years of pleading, the Spanish government granted permits to erect the channel missions, and the zealous Serra, imbued with fresh hope:

" . . . journeyed along the Santa Barbara channel and rejoiced to find there so many pagans upon whom the light of our holy faith was about to dawn."

April 29, 1782, saw the establishment of a military post at what was later to be known as the "Presidio" of Santa Barbara. A column of leather-jacketed soldiers under the command of Governor Felipe de Neve, and accompanied by the tireless friar, Junipero Serra, had quietly marched past the Indian village of "Amolomol," clustered about the present mouth of Mission Creek. Skirting the western border of the great estero which at that period extended nearly to the present site of the Santa Barbara High School, they entrenched near the village of "Yamnonalit," one border of which is now approximately marked by the intersection of Estado and De la Guerra streets. The remains of this village are described under the caption (26) "Siuh tun," in the chapter on "Sites." The occupation was completed, "—without the slightest opposition being made by the natives." Bancroft, speaking of this event, says that it occurred "near a large native town which, like its "temi," or chief, was called "Yanonalit"—"the natives were more friendly than had been anticipated." The Spanish invaders set to work industriously to erect fortifications and shelters, and to gather supplies.

Thus was founded the "Presidio," about which was eventually to cluster the city of Santa Barbara. Four years however elapsed before the authorities allowed the founding of the Mission, the real incentive for establishing a settlement at this place.

A difference in dates is sometimes encountered when reference is made to the founding of this Mission. It appears that a cross was formally raised at the future site on December 4, 1786, and a few historians adopt this as the date of the foundation. On December 16, 1786, a brush hut having been erected near the cross, Fr. Lasuen sang the first holy mass upon the spot, and declared the Mission Santa Barbara formally founded. One

can apparently select either date for the founding of the Mission.

The machinery of conversion seems to have been put into use almost immediately, for we read upon the third page of the "First Book of Baptisms of the Mission of Santa Barbara," that on December 31, 1786, "I solemnly baptised three adults known respectively in paganism as Catayu, Siocere, and Mumiyaüt."

The place selected for the erection of the Mission buildings was a knoll near the mouth of the gorge now known as Mission Canyon; the spot was called by the Indians "Taynayan," "rocky place," equivalent to the present Spanish name of the locality, "El Pedregoso." Our investigations lead us to the belief that an extensive Indian village had once occupied adjacent lands, but there is apparently no mention of it in the church records.

In the selection of the site, Governor Neve appears to have exerted himself in an effort to please the natives, for we find this remarkable caution to Fr. Serra regarding the location of the first building:

" . . . It is to be selected in such a way as not to disgust the gentile Indians, whom your Honor will treat with great sweetness and kindness, so that this enterprise will not be objectionable to them, carefully abstaining from whatsoever might cause ill feelings in them."

Building began almost immediately. Early in 1787, no less than eight large structures had been completed and a large acreage of crops planted, all through the labor of the Indians, who until that time had not known the meaning of labor or the use of metal tools. By mid-summer seventy Indians had been converted to the new faith. The report says, "there would have been many more if food and clothing had not been lacking." Each year every Indian received a blanket. Every six months men and boys received a pair of breeches, and every seven months a shirt. The women and girls were allotted a chemise and skirt each, every seven months. With this somewhat restricted wardrobe the hitherto naked savages were required to keep themselves "modestly arrayed," under pain of severe penalties for any lapse. Before a neophyte could receive new garments at the period of allotment, all old clothes had to be returned and burned.

At the close of the year 1788, three hundred and seven converted Indians were camped about the Mission. At the close of the year 1789, these had increased to four hundred and twenty-

five, and their advance in efficiency is indicated by their having replaced during that year the temporary wattle structures with tile-covered adobe. It is also noteworthy that this year saw the necessity for the erection of the first jail.

Until after the close of the year 1788, the Indians who were engaged in the labors about the Mission had resided in nearby huts, of the type to which they had always been accustomed, but early in 1798, nineteen substantial single-room adobe cabins with tile roofs were constructed for them, not far to the southwest of the main Mission buildings. These served partially to house the now rapidly increasing converts. They were surrounded by a substantial adobe wall, over eight feet in height, with but a single gateway, which was locked promptly at nine o'clock each night and not opened until time for morning prayers.

These new surroundings, we are given to understand, were for the furtherance of a more orderly mode of life. The next year saw thirty-one similar cabins added to the foregoing. These were each twelve feet wide by eighteen feet long, with one door and one small opening.

This compact village arrangement, while it outwardly bore semblance of greatly improved conditions for the Indians, and certainly lent itself to better discipline, yet clearly led to fatal results. We read in the records of that year that the living neophytes at that time numbered eight hundred and sixty-four, but the death register at the close of the same year discloses the startling fact that six hundred and sixty-two deaths had occurred in the thirteen years of mission activities; in other words over forty-three per cent of all the converts had perished. The Indians appear to have been aware of the fatal tendency of their environment, for we read, in the chronicles, of recalcitrant "run-aways" and of the punishments inflicted on them if they were caught.

It was during this period, also, that the custom of peonage was inaugurated. Indians who had been trained to the crafts by the Padres were frequently bound out to the soldiers and others, receiving no recompense for their labors, the scant returns for such service accruing to the Mission. This led to such reprehensible practices that the custom was later discouraged and eventually nearly discontinued, but not until the seeds of degradation had become widely disseminated.

In an effort to preserve purity, a large concourse of unmarried women and girls were kept segregated and carefully guarded from white contact. The "Monjerio," in which these unmated women were quartered, was locked on the outside at nightfall, and was never opened until broad daylight, and then by one of the Padres. "These women," as Fr. Tapis relates, "seldom die, unless it be one of those who are given to running away." A letter from Goycochea, Captain of the Presidio of Santa Barbara, to the governor, in 1795, repeats the commands that he has issued for the punishment of "concubiniñeros," and the treatment to be accorded the women who were involved.

In the early days of the Mission, when food was plentiful, the capacity of the Indian's appetite appears to have been fully recognized, for Fr. Tapis reports a day's rations at the time for each individual to have been: "—a large dipperful of 'atole' (mush) in the morning, two pounds of the same at noon and double the amount of 'pozole,' a thick soup. In the evening the same quantity of 'atole,' every day eight pounds of nourishing food, not counting the fruits, to each adult." Laborers received two pounds extra every day. To the above concise details of the daily menu, we will add the comments of another Padre, assigned to the Mission a few years later. Fr. Olbes says, in part:

"The meals of the Indians can not be counted because, it may be said, for them the entire day is one continuous meal. Even during the night, should they awaken from sleep, they are wont to reach out for something to eat. Their meals at the Mission consist of meat, corn, beans, peas, etc. Of these an abundance is given to each neophyte by the missionary fathers, and they prepare it as suits them best. Besides what the Mission gives them, the neophytes are very fond of what they lived on in paganism, as meat of deer, rabbits, rats, squirrels, or any little animal they can catch, while those on the seashore have a craving for whatever the sea produces."

Another side-light on the food problem of this period is the occasional mention of periods of want, due at least in part to crop failures. At such times, relays of the impounded natives were granted freedom "to go where they would to obtain sufficient food." At this same time of distress, the unpaid and underfed Indians who were retained kept the garrison of the Presidio in abundant supplies, and the sale of supplies to out-

siders had brought over three thousand dollars to the coffers of the Mission.

A fair degree of liberty was granted each male Indian for a part of each afternoon, except during the harvest rush. The time was his to do with as he saw fit, to "dance, or sing, or play their games, or take a walk on the beach." During the week many were granted a day off to go fishing.

In spite of what may at first appear to have been arduous restrictions, these regulations were undoubtedly made with the express purpose of uplifting the savages. As Fr. Engelhardt earnestly says:

" . . . the missionary rule was a mild one; no army, labor-union or school, grants such liberties. Many were the criticisms of the lax methods of restraint."

And Fr. Lasuen admits the justice of this statement, when he says:

" . . . for, by sharing in their former wild freedom, they retained a liking for it, and in a few weeks were lost the instruction and the civilized habits which it had taken so long to acquire. But critics agree with me that it was a necessary evil because, being continually tempted by their pagan friends, they would have left without permission, as many of them do anyway."

Severe punishments were meted out for the infringement of rules, including subjection to stocks, the shackles and the lash. How galling this physical punishment must have been, one may realize when we read in the early chronicles that there was absolutely no form of chastisement in use among the natives before the advent of the white man. Punishment was apparently inflicted on both sexes impartially, for we learn from Fr. Tapis that:

"As a rule the women were punished with one, two, or three days in the stocks, according to the gravity of the offense. If the delinquents prove obstinate in their evil relations, or if they run away, they are lashed in the women's apartment by the hand of another woman."

And then he adds quaintly:

"The Indians feel that they are never punished without first being fully convinced of their guilt. Hence it is that the neophytes humbly accept their punishment and afterwards are as affectionate towards the Fathers as before."

In January, 1801, a virulent epidemic of pleuro-pneumonia swept over Santa Barbara, exacting a toll of many lives and, for a time, threatening the extermination of the population. This caused such paroxysms of terror among the natives that the recent converts suddenly relapsed to the old shamanistic sacrifice to Chupu. This relapse was universal but short-lived, and the Padres soon completely reestablished their influence.

The year 1803 was probably the most memorable in the Mission annals as regards the natives. At the beginning of the year, one thousand seven hundred and ninety-two neophytes were in attendance at mass, the greatest number ever assembled at one time. The death register records show that the deaths to date had numbered one thousand and twenty-six. As the conversions to date had reached two thousand eight hundred and twenty-nine, it would appear that only eleven Indians had up to this year succeeded in effecting their escape. The Mission village had by now grown to one hundred and sixty-one cabins.

In this year, also, we note the lowest ratio of death among the Indians during the entire Mission period, the total deaths to date amounting to a shade over thirty-eight percent of the total converts. From this time on, the ratio gradually increases until it is depressingly near one hundred per cent.

By the close of the year 1807, the village near the Mission had grown to two hundred and fifty-two adobe cabins. In 1812, the buildings in the compound had in all probability increased to over three hundred, but the records for the intervening years are confused, and the confusion is complicated by the fact that buildings other than residences appear to have been erected in later years within the compound.

In the year 1808, the Indians constructed the fountain and lavatory that are still in existence; these show decided artistic ability on the part of the artisans, especially noteworthy being the sandstone bear, through which water enters the basin.

By 1812, only twenty-nine years after the founding of the Mission, Fr. Olbes reports that very few of the early converts were then living, those of twenty years standing even being very few in numbers. He further states that by this time all the Indians were syphilitic, and though they continued to marry freely, few children were born, and of these but a small percentage lived beyond infancy.

The steadily decreasing numbers of the enslaved Indian laborers brought a proportionate increase in the burdens of the individual, for there was no decrease in the demands of the garrison for abundant supplies. By 1828, these luckless remnants of a once numerous race had grown desperate over the increasing hard times and the ceaseless demands upon them by a shiftless soldiery. A mild, abortive insurrection was attempted.

For a time, the Indians, almost without arms, stood firmly against the fury of the well armed Spaniards, who had eventually retreated to the protecting walls of the Presidio. But the hapless "insurrectos" had seen enough to convince them of their probable fate, were they once within the power of the soldiers. They had seen four unarmed old men, kinsmen from the neighboring village of "Mikiw," ruthlessly clubbed to death, when they had unwittingly wandered into the scene of trouble, in an effort to visit their Christian relatives of the Mission. Completely disheartened by the violence to which they had been witness, the wretched Indians all fled to the fastness of a deep canyon near the head of Mission Creek, and there remained for a time under the leadership of the trusted Indian Alcalde, Andres.

Scouts having reported the departure of the Indians, the brave garrison now boldly left the protection of their ramparts and valiantly charged the residential compound at the Mission, capturing a young Indian who had volunteered to go back for a sack of corn for rations, everything having been abandoned by the refugees. This unfortunate youth was promptly bayoneted, and the victors at once proceeded to a complete pillaging of the Indian village. Fr. Ripoll, a resident Padre who had been a helpless observer of the orgy of destruction, voices his indignation in a report to his superior:

" . . . Ensign Matorena, of happy memory (?), gave the troops permission to sack all the dwellings of the Indians. This havoc it was that drove the nail into my already wretched heart. What destruction! Holy God! All the doors burst open—boxes, beds, clothing, grain—all robbed, and what they could not carry away, they scattered out on the road."

Indian scouts had witnessed this violence, and the knowledge of the ruthless destruction of their hard-earned personal belongings, coupled with the wanton murders of inoffensive individuals,

was more than the refugees could bear. They resolved on a journey fraught with tremendous hardships, through the very heart of the mountainous back country. The remnant eventually reached the Tulare Valley where they elected to establish a new home beyond the reach of white tyrants.

The Presidio of Santa Barbara was by this time in a state of consternation as the garrison began to realize that their only source of supply for food and other essentials had slipped from their grasp. Something must be done, and that at once. Accordingly the commandant ordered Lieutenant Narcisso Fabregat, at the head of fifty troopers, to seek out the refugees. Fr. Ripoll refused to accompany the expedition, flatly stating that he did not care to have his children see him in such company.

On April 9, 1824, Fabregat and his minions overtook the Indians on the shore of Buena Vista Lake, in Kern County, and at once attacked them. The Indians stood their ground valiantly in the preliminary clash. Two days later a detachment under the command of Sergeant Carlos Carillo came in contact with them near San Emigdio, to which point they had retreated. In the resulting engagement, four Indians were slain and three Spaniards wounded.

This appears to have satisfied the longing for military glory that had actuated the heroic Fabregat and his doughty ruffians, for they lost no time in heading back to Santa Barbara. It is said that when Governor Arguello thanked the troops for their bravery, "his face expressed great surprise at their returning so soon, and empty-handed." Fabregat explained, shamefacedly, that high winds and dust clouds made it inexpedient to follow the Indians in their retreat.

The Governor at once decreed that the fugitives must be brought back to Santa Barbara at all hazards, and peremptorily requested that a priest be sent with the next expedition, that his added influence might make the capture easier. The friars firmly refused, even pleading to be relieved from their office as "they loathed what had now become very much the office of a slave master." Fr. Ripoll, in a letter replying to his superior's orders to accompany the soldiers, says:

"I entreat you for the love of Jesus Christ, and for the sake of His Most Holy Mother, to designate another. Portilla and his troops have already arrived—they are going after my

beloved children. I have no heart for such a thing—it is repugnant to a father to present himself before his children in the company of soldiers whom the Indians have cause to regard as enemies.’’

Despite his most earnest protestations, the father was compelled to accompany the troop of sixty-three soldiers which set out with one cannon, under the command of Captain Pablo de la Portilla, from Santa Barbara on June 2, 1824. Another force, under Lieutenant Antonio del Valle, consisting of fifty men and one cannon, left Monterey at the same time, the plan being to combine forces near San Emigdio or on the Tulare plains.

Soon after the union was effected, the troops came in contact with the Indians. A solemn council was held, in which only the presence of the priest finally brought about a peaceful result. A church rite was celebrated in a hut built by the Indians for the occasion; a recently born child was baptized with no less a person than the bluff Captain Portilla himself acting as godfather, and the sad incidents of the past few weeks were apparently forgotten.

By June 21, 1824, the majority of the Mission Indians found themselves again in the Santa Barbara compound, endeavoring to adjust themselves to the ruined cabins, reminders of the recent visit of the soldiers. Apparently no effort was ever made towards restitution for the havoc wrought in this raid.

The roll call of those present on December 31, 1824, shows that nine hundred and twenty-three Indians now resided at the Mission, as compared with nine hundred and sixty-two at the time of the revolt. Allowing for the average mortality and the vicissitudes of the recent campaign, there are still a few individuals unaccounted for. It appears reasonable to suppose that a small band of the refugees succeeded in avoiding the council with Portilla; these may have established themselves in inaccessible canyons and perhaps retained their independence to the end of their story. There are to this day in the Tulare region a few old and broken Indians of unmistakable Canaliño ancestry, who retain fairly lucid traditions of the revolt we have outlined above. The numbers of this isolated group were undoubtedly augmented from time to time, both before and after the year 1824, by occasional runaways from the various channel missions.

This year was also a turning point in the chief activity of

the Mission, for it is frankly stated that very few, if any, pagans remained on the coast to be converted. Without accessions of new converts, the diseased and barren native remnant was rapidly disintegrating as a racial unit.

Fresh cause for disorganization at the Mission arose soon after, when, in 1827, a revolutionary congress of Mexico issued a decree banishing all those of Spanish birth, thus removing at one stroke the last members of the white race upon whom the native could lean for guidance.

On December 31, 1828, the Mexican Lieutenant, Pacheco, who had succeeded to the custodianship of the Mission properties, reports: "The few Indians not attached to the Mission maintain themselves by serving private parties." By the year 1830, the total number of Santa Barbara Indians had decreased to seven hundred and eleven.

Political intrigues culminated on July 15, 1833, in the farcical proclamation of Governor Jose Figueroa, giving freedom to all mission Indians, "—a condition that they apparently did not crave, and which they certainly were in no position to make use of." In this year Mr. Alfred Robinson writes:

" . . . vice of all kinds had become prevalent, and the poor, misguided Indians saw in the terms 'libre' and 'independente,' a license for the indulgence of every passion."

The governor added fresh fuel to the conflagration when on October 15, 1833, he offered the right of franchise to all Indians who would sever their relations with the Mission. Since this offer had little result, he issued on August 9, 1834, the historical decree of Mission secularization, which automatically removed the Indians from the control of the Padres, and turned them and their property over to political hirelings. The condition of the poor native was now no whit removed from that of abject slavery.

It was at this time that a plea for the establishment of a school for Indians was met by the brusque reply that "the Indians are needed to do the work." An attempt by Fr. Jimneo to organize a class was soon abandoned for want of students.

By the year 1839, the few remaining Indians had become very troublesome through drunkenness, and Governor Alvarado appointed an Englishman, William Hartnell, as Inspector, in an effort to correct some of the ills. In his reports the inspector

states that wherever he found Indians, there also he found destitution, misery and discontent. He also speaks of there being little hope of helping in any permanent way the few wretched survivors.

He goes into the details of one incident that occurred at the Santa Barbara Mission during his tour of inspection. I will give a condensed version of this part of his report:

"I was approached at this time by the Indian Antonia who among other complaints said: 'We are children of God, but are not treated as such by the Administrator, hence we return to paganism, because this man does not want the people here to pray, neither in a body or privately, and this we do not wish to endure any longer!'"

As a sequel Mr. Hartnell states later on:

"... we saw the Administrator acting like a demon. He was dragging the Indian Antonia about by the hair of the head, and when I endeavored to separate them he insulted me."

In the year 1839, Mr. Hartnell reports that there were still two hundred and forty-six Indians living in the vicinity of Santa Barbara. In spite of the shameful treatment to which they were subjected and their rapidly diminishing numbers, this pitiful remnant were still compelled to support, unaided and without recompense, the garrison at the Presidio.

The great mortality among them was at last used as an argument that the remaining Indians should be removed from the village compound near the Mission—"owing to the pestiferous miasmas in the ranheria"—but the report also mentions the "profit" that would accrue from the sale of the roof tiles when the cabins were razed. A final paragraph in this suggestion for eviction says: "the Indians are much inclined to repair these houses and occupy them,"

The chronicle of the Barbariño Indian as a race may be said to close with the year 1840. The little remnant of not more than two hundred souls had been by this time almost entirely removed and were now scattered to the four winds. The largest group was located at old, historic "Sagspileel," upon the Cienega, some four miles west of Santa Barbara Mission. For some unknown reason this people had been permitted to remain in their original home. Here were still to be found Indians clustered

about the adobe chapel that had been erected by the Padres in 1803. These Indians lived in adobe cabins built at the same time as the church, and maintained themselves much more successfully than did those that were scattered in small groups or singly among the great ranches of the period.

What were the causes that wrought such disaster to a teeming race? That this people were not constituted to withstand the attacks of the Caucasian's vices and communicable diseases is evident, and perhaps this inability alone would have eventually been their undoing, as was the case with so many other primitive races. The attempt of the Padres, however, to convert them in one supreme effort to the white man's standard of living doubtless broke down the powers of resistance by which the Indian might possibly have postponed his decay. From its inception until its end, this tremendous experiment spanned but the period of one normal lifetime. In the history of mankind one will find few parallel cases.

The beneficent attitude of the Padres must not for a moment be lost sight of, whatever may have been the ultimate results. For generations they stood as a bulwark between their child-like flock and the thoughtless citizens. The Mission records are full of every day parochial occurrences, nearly all indicating a friendly cooperation.

Since the Padres had to convert and hold within their dominion thousands of Indians, and compel them to be self sustaining under an entirely new order of existence, they had of course no time for ethnological investigations. So engrossed were the Fathers in what they looked upon as a clear-cut line of duty, that they almost totally ignored the vast field of opportunities that lay at their very thresholds. We do not presume to criticise the motives that actuated the Fathers; we can only regret that in those closing days of a people that passed from the crest of their culture to oblivion in less time than has any other people of which we have knowledge, no effort was made to preserve their language, their traditions, their religious beliefs, their habits and customs.

At the time of the completion of the secularization of the missions, this region had assumed a certain feudal aspect. Immense ranches, over which ranged great herds, had their retinues of gaily caparisoned retainers, none of whom were expected to

fulfill other than purely picturesque functions. All menial labor was accomplished by the few undemonstrative Indians who were held as peons, with little recompense and no hope for future betterment. These poor creatures would have attracted no attention, had it not been for their unfortunate fondness for drink. We are told that, during the periods of Indian carousal, all of the young caballeros who had due regard for a whole skin, quietly withdrew from the public places, when the drink-crazed Indians began to be conspicuously aggressive.

Nor were these tendencies toward violence confined to the male sex. Of the few remaining females, all now strangers to moral rectitude, several were held in great dread by the townspeople. One, known far and wide as "La Chola," lived alone in a hut near the mouth of Mission Creek. She, on more than one occasion, when in her cups, caused wide consternation by recourse to her ever ready knife. After these wild orgies had spent themselves, the hapless beings were always severely dealt with, and it was a thoroughly sobered, cowed and broken Indian who limped back to his thankless toil on the ranch or, in the case of lone women, to slave over a wash tub.

To reconstruct the life of the degraded remnant of the race at this period is neither a pleasant nor a fruitful task. Few records, aside from the scanty police archives, so much as mention the Indian. One exception to this statement must be made. The struggling remnant at Cieneguitas attempted at different times to establish title to their holdings there, as the whites encroached upon them. A few such efforts are still on record.

We have now arrived at a date when another change in the political atmosphere was to usher in a new order. For a number of years past, hardy Anglo-Saxon adventurers had trickled through the mountain barriers from the regions to the east. Ignoring the previous claims of the Spanish and Mexican residents, these undisciplined frontiersmen proceeded, in 1846, to proclaim an independent republic under the now-famous "Bear Flag."

This act was followed in rapid succession by annexation to the Union, the discovery of gold, and the subsequent rush of fortune hunters from every part of the United States to the coast. The result was necessarily a complete revolution in the social life of California. The picturesque, carefree, happy-go-lucky exist-

ence of the Spanish Dons drew to a close, and in its place, throughout the length and breadth of the new Eldorado, was substituted the mad struggle for gold.

The vicinity of Santa Barbara, from its geographical isolation and lack of mineral wealth, escaped for a time the complete readjustment experienced elsewhere. But even here the great herds of cattle, that had formerly been slaughtered for their hides and tallow alone, to supply the coast trade, were now turned into a beef supply for the miners, in exchange for gold, a hitherto all but unknown medium of exchange in these parts.

Newly acquired riches inaugurated a period of wild excesses, undreamed of in the old days. Entire sections of Santa Barbara were given over to gambling dives and kindred resorts. It was no unusual sight then to see stacks of gold "slugs," about which surged the newly enriched Spaniards and the omnipresent, supple-fingered Yankee card-sharps and usurers, who saw to it that, within a comparatively brief period, the formerly independent Spanish population was reduced to a state bordering upon penury. Nearly all the great estates and the administration of public affairs passed into the hands of the despised "gringos."

This brief resumé of the trend of events from the early forties until well into the sixties is presented so that we may more clearly grasp the situation in which the sadly degraded remnants of the Canaliño race found themselves. They were caught between the upper and lower millstones of the two European races who were striving for supremacy. The Spaniard, through long association with and dependence upon the Indian for support, now tolerated him as an unobtrusive necessary evil who, to be sure, sometimes got beyond control, and at such times must be avoided until he could be safely manacled and adequately punished. The Yankees, fresh from contact with the natives of the plains who were prone to fight to the death in defense of their rights, treated with contempt the quiet, unresentful slaves of the Spaniards, in derision dubbing them "diggers," in common with all other coastal tribes with whom they had come in contact. Woe to the hapless native who, under the influence of liquor, attempted the terrorism that had been the dread of the "paisano." If he tried his violence upon one of the newly arrived Anglo-Saxon lords, the chances were very slight of his ever again appearing before an accredited judge for sentence.

The written records of these twenty years of readjustment appear to be entirely devoid of reference to the Indian. But scattered throughout our community are still a few aged citizens whose memory retains the impression stamped upon their childhood by the strenuous times of which we write. Naturally the tragic figures of the few forlorn Indians with whom they came in contact, appealed strongly to their impressionable minds, and it is to them we are indebted for a few incidents relative to our topic.

We learn that the favorite haunt of the Indian of this period was about the gambling resorts, where the hectic life of the time centered. Wandering almost unnoticed about these places, he gathered the crumbs from the golden repasts spread for the white races who contended for mastery. After drinking bouts, he greedily drained the dregs from the glasses. He frequently solicited drinks from the more friendly of the Spanish grandees, and not infrequently shared the "treats" offered by some fortunate winner of heavy stakes who was not particular about the number or social standing of his guests. It is remembered that on one occasion a giant Indian, dubbed "Chico," solicited a drink from a Californian, who, mounted upon a burro, had just ridden up before a saloon. Being ignored, "Chico" bided his time, and ducking under the donkey, heaved beast and rider through the door and against the bar. The roar of derision that greeted the discomfited horseman brought drinks for the crowd, in which "Chico" received a second helping in recognition of his generalship.

We find no evidence of intentional uplift of the natives during this time of social upheaval, but, strange as it may seem, they appear to have fared somewhat better than at any time since falling under white control. The prosperous times following the discovery of gold, and the abolishment at the same time of the parasitic garrison at the Presidio, had to a large degree emancipated the peons. The American considered the debased natives as far beneath consideration and disregarded them except as subjects for occasional punishment. The Spaniards were not slow to adopt the attitude of the Americans, and hence the natives were left largely to their own devices. They continued to partake of intoxicants whenever these were attainable, but henceforth were very careful not to become unduly demonstrative. It

is quite probable that all of those who had indulged in the earlier terrorism had by this time passed to their reward.

Medical treatment for an Indian was unheard of. Yet this period apparently shows a smaller percentage of mortality than any of which we have treated. Children, however, were no longer born except at rare intervals.

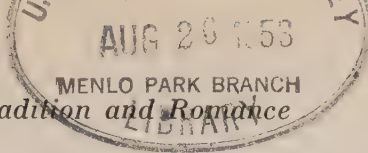
At Cieneguitas a group still held tenaciously to the ancestral village of Sagspileel, although this was being continually encroached upon by whites who coveted the well-watered site, planted to many varieties of fruit trees and carefully cultivated.

As an example of the efforts that had to be continuously made to guard their rights and protect the titles to their homes, we transcribe in full one document that was placed on file among other county records in 1849:

“In the name of the Most Holy Trinity, Father, Son and Holy Ghost. I, Francisco Massilili, native of the Mission of Santa Barbara, aged sixteen years and four months and three days, legitimate son of the Indians called Fulgencio and Petronila, of the same Mission, being in sound mind and in my natural judgment, believing, as I truly believe, all the articles and mysteries of the Catholic Apostolic and Roman Faith, in which faith I was baptized, and in which I hope to live and die. Being the proprietor of a garden situated at San Francisco Xavier, alias La Cieneguita, inasmuch as I am the legitimate heir of my grandfather on my mother's side, Higinio, I ordain, and it is my will, that in the case of my death, Jose Feliciano Sugriyet should inherit and have possession of said garden. I name him in the first place. In the second place I name Gabriel, the son of the late Prisca. These I designate as my only legitimate heirs of said garden, and I annul and repeal whatever other disposition of mine previous to said date. And I protest that I freely and spontaneously make this manifestation or declaration of my will regarding the aforesaid persons, Feliciano, and in case of his of his demise, Gabriel.”—(execution and signature.)

The constitutional Alcalde of Santa Barbara, and the Missionary Father of the Neophytes of the same place, certify:

“That the garden situated at San Francisco (alias Cieneguita) established by the neophyte Higinio, who has died since, is the property of Francisco Massilili as the legitimate grandson, which he is, on the mother's side, of said Higinio, who has no other lawful heir, there being none than the aforesaid Francisco. The garden comprises three hundred and



sixty Spanish yards of timber, six fig trees, twelve pear trees, eight peach trees, fifteen grape vines, one prickly-pear cactus, and one water ditch."

During the year 1849 Thomas Hope arrived in Santa Barbara from Texas; he appears to have at once taken more than a casual interest in the Indians of this settlement. He was later appointed agent for them by the United States Government, with special instructions to guard them against white contamination and the introduction of liquor. Later Mr. Hope came into possession of the adjacent lands which have since been known as "Las Positas," or Hope Ranch.

The Indians at Cieneguitas were still occupying a few of the small adobe cabins erected under the supervision of the Padres in 1803. These were in every respect like those in the Mission compound, and were scattered about the now dilapidated chapel which had been built the same year. The interior of these huts was furnished in the typical native fashion, the most noticeable feature being the wide slings, or tule mats, hung from the rafters. Upon these swinging supports were stored most of the possessions of the household. During the summer a part, at least, of the villagers resided in tule huts of the aboriginal type, built in the depths of the cienega, or marsh.

At the beginning of Thomas Hope's supervision there were probably about sixty souls still surviving at Cieneguitas. Over these he apparently exercised a guardianship and was repaid by true fealty. One incident will serve to illustrate this. The people of the region had, in the thoughtless manner of all new countries, established roadways wherever convenience dictated, without regard to the rights of the owners of the land crossed. One of these unsponsored trails had been driven through the Hope Ranch and traversed the width of the Indian village. By the year 1873, this thoroughfare had reached a stage where it required repairs, and a movement was started to have it proclaimed a public highway. At this juncture, Thomas Hope endeavored to call a halt, as the road, if once established, would divide his holdings. He intrusted the matter to Justo, a giant of the village and requested him to prevent all traffic.

Justo took his own methods. He stretched a rope across the roadway, and with a great club in his hand stood guard. Upon the arrival of horseman or team, he beat the earth with his

bludgeon, and roared defiance and dire threats at anyone inclined to proceed. The situation was extremely irritating, but also had its humorous features, and eventually the day wore out without anyone having crossed the line.

This was the year of the great Modoc insurrection, farther north, and when the thwarted teamsters applied to the authorities for redress from the wrong that they felt had been done them, they mentioned " . . . a Modoc War of our own up the road" that had to be quelled. From that date to this the thoroughfare has been known as the "Modoc Road," fitting monument to Justo's wasted valor, for Hope lost his fight and the road was made permanent. Thomas Hope died in 1876. His widow continued a careful supervision of her decreasing wards until 1886, when the ranch passed into the hands of the Pacific Improvement Co. This company was in no wise disposed to countenance the presence of the native villagers in the midst of their holdings, despite their undoubted right to the site, based on hundreds of years of uncontested occupancy by their people, with the explicit sanction of the church and the various governments to which they had been subject.

At that time, seven occupied cabins were to be found upon the site. These housed eleven Indians. Old Lino, who had been blind for years, lived alone beside a spring in the only hut to the east of the Cienega. He was murdered by a wandering young renegade who disclosed no motive for his deed, although those most conversant with the Indian character have suggested that the motive was probably one of sympathy.

Close beside the present Coast Highway stood the cabin of Tomasa, a widow. At what is now the deepest part of the railroad cut, lived Maria Los Angeles. Not far from the chapel resided Justo, he of the "Modoc" defense, with his wife Cecilia and their two children, Maria and Juan Justo. Close to the north side of the Modoc Road was the cabin of Petra and his son Rosenda. Where the pump house now stands, lived Juan Capistrano, unmarried, and a little nearer the marsh lived Foutasia.

A strange fatality seemed now to dog these poor people. If they trudged to town for an outing or to obtain supplies, they often found, upon their return, only a smoking ruin where had once been their home. Only one recourse was left to them,

to crowd into the huts of those who were so fortunate as to have stayed at home. At last, when only three huts remained to them, they never left these without someone to guard them from the agents of destruction.

This condition could not long endure, and a writ of ejectment was served by officers of the law. One can readily imagine the despair that must now have seized these hapless people—pariahs in the land where their ancestors had lived a happy existence, scorned and repulsed by all with whom they came in contact, without means of support, or any spot upon which they might establish a residence.

We can find no record of the fate that overtook Tomasa, Maria Los Angeles, Juan Capistrano, Petra and Foutasia, but it may be easily conjectured. Rosenda, son of Petra, wandered out of the region, and his fate, too, is lost to us.

Justo and Cecilia took service upon the McCaffery ranch and assisted the owner faithfully for a time in the care of the vineyard. They appear to have made for themselves a place in public esteem, in spite of their frailties. It is told that after a hard season's work they would slip into town. This usually meant that they would at once secure something with which to slake their insatiable thirst. No violence is recorded of them, but, in the still hours of the night, Justo would be seen riding his pony homeward, much the worse for his potations, with Cecilia plodding faithfully behind, carrying their small purchases. Upon arriving at the ranch, a pang of conscience would sometimes overtake the erring ones, and Justo, reverting to his early Christian training, would light a candle and sing the Latin mass from first to last without faltering.

Their daughter, Maria, married a Mexican by the name of Ygnacio and bore him three children. Maria and her little brood, as she collected and delivered laundry, in the well-known dump cart drawn by a diminutive donkey, were for years familiar sights on the streets of Santa Barbara. Tradition has it that on one occasion she emerged from a side street in her usual conveyance and quietly took her place at the head of the procession, during the funeral observances of a prominent member of one of the old families. Thus would an Indian do honor to the memory of a departed friend. But in this instance Maria's efforts were hardly appreciated, for a volley of Spanish

invectives from one of the leading coaches caused her dejectedly to turn down the next side street, without a glance backward. Maria died at a comparatively advanced age.

We have, from this point, to follow the destinies of a once numerous race through but one individual, the lonely Juan Justo, son of Justo and Cecilia of Sagspileel. After leaving the McCaffery ranch, he obtained a minor position from the Santa Barbara Street Department and served faithfully for years for a pittance, refusing a slight advance in wages on the ground that the increased wage would appear so attractive to others that his position would be endangered. But a change in administration came, and the faithful Juan was dropped from the rolls without a thought for his many years of faithful drudgery. Old, sick and disheartened, he sought refuge in the little cabin of a descendant of his sister Maria.

Infrequent and spasmodic paroxysms of kindly interest have been shown by individuals and charitably disposed groups, when Justo's sad story has been brought to their notice. Through the kindness of his niece he is still sheltered by her little cabin, lonely and forgotten, the last survivor of a once happy, populous race.

Besides the group of Cieneguitos whose annals we have followed above, we hear of but one other small family at that time, whose name has slipped from the memory of the older inhabitants. They lived near Picay Creek, east of Montecito.

The story of the Indians of Santa Barbara, as a document dealing with the final chapter of an entire group of the human race is singularly complete, but from an ethnological standpoint it is nearly devoid of value. Had one of the early Padres devoted himself to a study of the culture of the Barbariño, as did Fr. Boscana to that of the Juaneño-Gabrieliño, our present knowledge of aboriginal traditions, customs, religious observances, etc., would not be the disappointing fragment which is all that we can glean from the early annals.

Of first importance to the field archæologist in his preliminary surveys are surface deposits of camp refuse, a sure indication of the former presence of a group of the human race. These indications may vary greatly in nature in widely sep-

arated parts of the globe. Broken pottery may be the outstanding feature of one refuse heap, oyster shells of another, and laminations of echinoderm spines mark a third. It is through a patient study of these variations that archæologists acquire much of their knowledge of the early history of man, each step in his culture being faithfully recorded by the refuse he has left at his back door. By careful study of the contents of the various strata encountered, it is often possible to make delicate distinctions of cultures which were separated by only a few hundred years. This classification is accomplished by determining the presence or absence of certain slight variations, such as those between ware that is glazed or non-glazed, plain or decorated, with painted or incised figures. Even the quality of the materials employed and the technique of their production tell a story of the advance, retardation, or degeneration of a people. The Santa Barbara region, though entirely lacking in pottery, yet contains distinctive remains by which we have been enabled to add materially to its known prehistory.

I shall have occasion frequently to call attention to the devastation that has been wrought in the various former villages. Intensive cultivation has been active for many years over most of the available sites, their fertility making special appeal to the farmer and the horticulturist. This constant cultivation and the attendant application of water have gone far in changing the texture and appearance of the soil and its superficial contents. At the same time, the process of eliminating the artifacts from this superficial soil has gone steadily on.

The smaller relics that have been picked up from the plowed field are to be found scattered in the recesses of forgotten shelves and boxes. The larger, perfect pieces have been brought to the homes to decorate porch or lawn, while fragments have been ignominiously thrown upon the rock piles. In each instance, all memory of the place where the object was found, and the surrounding circumstances has been lost. We find, closely associated, artifacts that could not by any flight of imagination be ascribed to the same cultural era.

When we visit the cultivated field from which these objects are said to have been taken, we shall at once be impressed by its loose, sooty nature. The resident Californian will assure us that it is "greasy Indian soil," a well merited name, for after

years of cultivation that have reduced a large part of the coarser materials to dust, this "greasy" texture persists.

Little may now be learned from the surface. At irregular intervals there may occur small mounds of fresh earth where either the pocket gopher or the ground squirrel have their homes. These freshly made mounds are frequently well worth investigation, for the occupants usually drive their tunnels below the cultivated stratum, and one can often gain a fairly accurate understanding of the substrata by screening the tailings from their runways, or can even recover small artifacts. Even small portions of human skeletons have occasionally been found in this way, indicating the presence of a burial plot in the vicinity.

It is very evident that we must dig below the area that has been disturbed by modern man, if we are to gain any knowledge of the sequence of events in any given territory. This procedure is usually inaugurated by sinking a series of test-pits at regular intervals over the areas that offer the greatest possibilities. The tailings from these pits are carefully studied and notations made. This process, while in no sense thorough, often yields a great amount of information as to the past story and the present condition of the site. In this manner we have often been able to determine the depth and constituents of the camp debris, the bounds of the site, and the breaks in its stratification, and not infrequently have located hut and temescal sites, dance floors and cemeteries.

Our final procedure is to drive long trenches through those sections of the former village that have proved of the greatest interest in the preliminary investigation. These longitudinal trenches are supplemented by trenches running at right angles from them. In every case these excavations are of sufficient width to permit the use of hand tools, or about forty inches, and extend from the surface down to soil that has beyond any reasonable doubt never been disturbed by man. The linear extent is limited only by the details disclosed. When these cease to be of sufficient interest to warrant continuing, we stop.

A study of the cross section exposed on the sides of this open trench gives a wonderful insight into the past. The contents of the successive layers speak as plainly as the printed page of many of the homely customs of the former inhabitants. Here is a pile

of fish scales and fins where sea food had been prepared. We probe about in this mass and find several broken shell fish-hooks. We picture these as having been retained in the maw of the fish and then discarded with the other offal, and thus obtain a hint as to the methods of securing this form of food. We find a little heap of flint chips, a few half finished and broken arrow heads, a stone anvil and hammer, and we read a chapter in the daily life of an artisan in flint.

In another place a cache contains a double handful of unworked shells of the *Olivella biplicata*, others that have been split, yet others in which the fragments have been drilled and some which have been partially ground into shape. A cluster of the slender spine-like flint drills with which the perforations in beads were made, may also be found among the shells. We recognize the former workshop of a wampum maker, one of a group of artisans whose products are found distributed over a large part of the United States.

It is by scrupulous attention to details such as these that we are at last enabled to obtain almost a complete picture of the village life of long ago. These studies, of course, include examinations of the ruined sweat-houses, council compounds, dance platforms and dwellings. Above all we must make a study of the cemeteries, for it is here that we find the greatest manifestations of the spiritual side of Indian character.

Occasionally we find, sometimes several feet below the present surface, a stratum that has unmistakably been exposed upon the surface for a long period, during which it received no accretions. In many instances, there are evidences of great erosion that gullied the heaps of debris and converted portions of the remainder to a mortar-like texture. Upon this long abandoned and roughened surface finally settled a group of men whose continued residence eventually blanketed the entire site with refuse indicative of a different mode of life from the people who had first occupied the ground.

It is no unusual thing, under the above described conditions, to find that the artifacts inclosed in the upper stratum differ widely from those of the lower. In instances of this kind the strata invariably show also a difference in the other components. The upper layer is very apt to be loose in texture and composed largely of shells of *Pecten*, *Solen*, *Mytilus*, and *Olivella*. Inter-

persed with these are the very prominent remains of fish. Remains of birds and of the smaller land mammals make up a considerable portion, and the bones of whale, seal and porpoise are common. Throughout the entire depth, mingling with the other debris, is the sooty, greasy characteristic dust of the Canaliño sites.

The stratum below the evidences of erosion may exhibit entirely different characteristics. The sooty black element will probably be entirely absent; the layer will therefore be much firmer in texture than the one above. The contents are much lighter in color, and consist largely of the shells of *Astrea*, *Haliotes*, *Polineces*, *Cardium*, *Hinnites* and the great *Tivela*. Intermingled with these are large numbers of the bones of deer, elk, bear, mountain lion, coyote, seal, and a few porpoise. Fish remains are negligible. The presence of crude massive weapons confirms our conclusion that these are the remains of an energetic race of hunters.

Another formation that may be encountered is of strikingly different character. Light gray in color, hard, almost stony in texture, it seems at first composed almost entirely of lime. Upon closer inspection one may see, imbedded in the calcareous layer, small portions of massive shells and flecks of charcoal and, not infrequently, either entire or fragmentary artifacts of the crudest imaginable type and finish.

Another stratigraphic feature sometimes noted in an exposed cross section of the sites situated nearer sea-level are widely separated layers of boulders and gravel, or a deposit of clay or alluvial silt, or even of beach sand. Each of these deposits is an eloquent page, recording sudden, overwhelming visitations of natural forces. A cloud-burst in the mountains has carried down a mass of boulders upon the unprepared villagers. Winter freshets have sometimes forced the nearby streams over their banks and engulfed the settlements in a sea of mud. At rarer intervals, sea storms, coming at a period of high tide, have swept the huts away and left a desolate waste of beach sand. I believe that even tidal waves have sometimes added to the record of disaster.

Besides the changes which natural forces have wrought in the condition of the village sites, the havoc caused by man's activity in recent years has greatly handicapped the labors of the archæologist. In many instances a former home site of the

Indians has been selected for a modern residence, a hotel or other extensive building operation. Among the ancient sites that have been involved in this programme of surface remodeling are Stanley Park, Bailard, Lymans No. 1, Franklin Canyon, Kolok, Miramar, Swetete, Vivian, Tanayan, Lone Pine, Siuh-tun, Burton Mound, El Banos, Hope Cliff, Ushtahash, and La Quemada.

Of only slightly less extent is the mutilation from major engineering operations, the grading for railroads and highways, oil development, asphalt mines, etc. Among the sites thus affected are Higgins, Mishopshnow, Vivian, Amolomol, Campbell No. 1, Refugio No. 1, Refugio No. 2, Tajiguas No. 1, Alcatraz and Gaviota No. 1.

It is, however, to another human activity, and one with no utilitarian motive, that the chief havoc to former sites is due. I refer to the mania for collecting curios. With few exceptions the ancient camp sites of this vicinity have been most thoroughly looted of their chief relics. A few scientists have devoted some time to the study of our field, and their work is of great value, but in the majority of cases the plundering of rancheria sites has been for the mere acquisition of relics, no record whatever having been secured of the conditions surrounding the finds.

In not a few of the sites examined, the devastation has been complete, erasing the story of a community as completely as fire would destroy the printed page. In other instances the looting has been done in a more slovenly fashion, leaving fragments of the original conditions *in situ*. For purposes of research the latter locations may be compared to a volume of history from which the most interesting chapters have been torn, leaving more or less unconnected and dog-eared pages from which to reconstruct the story. Even in the sites that have suffered only casual visitations from the relic hunters, we find the continuity of the story broken by missing pages.

This is a brief description of the field and the conditions that confronted us at the beginning of our investigations in 1923, a field only scratched by science previous to that time. As the investigation proceeded, I was able to piece together, item by item, from even the mutilated record, the history of a succession of events that had hitherto been unsuspected either here or in

any part of California. They showed that a succession of distinct cultures, possibly of races, had each run its course and then completely vanished from the region under consideration and that the first of these peoples had arrived at a period so remote that even the climatic conditions differed greatly from those to which we are accustomed.

In connection with other research work, we have, whenever convenient, reviewed the work of others, who in one capacity or another have interested themselves in the antiquities of this vicinity. These earlier investigators vary greatly in their qualifications and in the motives that actuated them, and the results of their activities should always be weighed with these facts in mind. We will endeavor to give without prejudice a summary of the explorations that preceded our own.

Early in the seventies of the last century there appeared in the channel a French schooner, well equipped for scientific investigation. The leadership of this expedition is sometimes ascribed to M. Pinart, sometimes to Count de Cessac.

It was Cessac, however, a well trained archæologist, who has left the strongest imprint of his presence in this region. Fresh from the great Mayan and Aztec ruins of Mexico, he for months carried on a successful exploration of the Channel Islands, and closed his activities in this vicinity by devoting many weeks to the rancherias that had once existed about the borders of the great Goleta Estero. He also extended his explorations to include the site at the mouth of La Quemada Canyon, near the present village of Tajiguas and possibly farther.

Tradition preserves accounts of his thus acquiring a vast collection of very choice artifacts; this may easily have been the case, as the cemeteries up to that time had lain absolutely undisturbed. It is certain that at the close of his field operations, Cessac secured the use of a commodious store-room near the lower end of State Street and there displayed, free of charge, an especially fine and well selected collection of relics. He also gave lectures on his collection to those of the public who chanced to be interested. Cessac then packed his collections and departed for France in 1872. His collections were for years on display in a Paris museum. A brochure based upon this exhibit is said to be in existence but we have not been able to secure a copy.

About the time of Cessac's departure there appeared in this region a tireless explorer, Paul Schumacher, working under the joint auspices of the Smithsonian Institution and the Peabody Museum. His activities were largely confined to the valleys of the back country, but he did some work on the Channel Islands and in the vicinity of Santa Barbara. I have been told by a presumably reliable old settler that for a brief period Schumacher worked in collaboration with Cessac. His work in the field and the conclusions at which he arrived are of a high order of excellence.

In the year 1875, a well equipped group of scientists were sent into this region by the Engineer Corps of the United States Army. These were under the direct supervision of First Lieutenant George M. Wheeler, and the results of their activities were later embodied in seven large volumes, under the general title of "U. S. Geographical Survey West of The Hundredth Meridian." Each volume was devoted to a special department of the survey; the results of the archæological investigations are contained in Vol. VII, compiled and edited and largely written by Prof. Frederick W. Putnam, curator of the Peabody Museum. This volume is unfortunately rare and difficult of access. In it are to be found concise accounts of the results of the excavations carried on at two points near the Goleta Slough, and at both Mikiw and Kuyamu, the two villages that make up Dos Pueblos, by Dr. H. C. Yarrow, assisted by Dr. J. T. Rothrock and Mr. H. W. Henshaw.

The results from these hitherto untouched sites were apparently very satisfactory, and very adequate cuts are given of material found. It is worthy of comment that, at that early date, the wooden remains in the graves could still be salvaged. In this way clues to the great sea-going canoes were obtained, as portions of these craft were occasionally buried with the seamen.

Prof. Putnam, in presenting the original material at hand, did not neglect the work of others who had previously endeavored to solve a few of the ethnological problems of the region. He devotes some space to Stephen Powers, who in the *Overland Monthly* presents what he considers proof of the accidental occurrence of a small group of Chinese in early times upon the California coast. He mentions Dr. Pickering's theory of Poly-

nesian ancestry for the central Californian tribes, in his "Races of Man," gives Mr. Lewis H. Morgan due credit for his monumental thesis of the Asiatic origin of all American races, in the "Consanguinity and Affinity of the Human Family," and even gives space to the now discarded theory of the presence of man in America in Pleistocene time, presented before the California Academy of Sciences by Prof. J. D. Whitney and Dr. J. G. Cooper.

To the greater part of this earlier work Prof. Putnam gives but passing comment, realizing that while these theories are the earnest efforts of scholarly men, they are at best based largely upon insufficient data. He then proceeds to a very careful summary of the results of the exploration of 1875, from which he draws his conclusions with commendable judgment.

These summaries of the results of the Wheeler expedition remained the last scientific first-hand notes on the archaeology of this vicinity for nearly fifty years. Numerous historical compendiums have appeared from time to time, each devoting a few pages to the so-called "Chumash aborigines," but, so far as I have been able to learn, without having been based on any extended investigations among actual remains. Each writer has apparently contented himself with a review of already existing records, placing upon these his own interpretation, based largely upon comparative study. Dr. A. L. Kroeber's masterly work, "The Handbook of the Indians of California," is the best summary of information regarding the people of which it treats. In this work we find eighteen pages devoted to the "Chumash." In his introductory remarks, Dr. Kroeber frankly admits the dearth of information regarding this group, and in this connection says:

"The result is that there exist more impressions than information. There is no group in the State that once held the importance of the Chumash concerning which we know so little."

A discouraging feature of the early records is the evidence of tremendous activity on the part of certain indefatigable individuals who followed closely upon the heels of Wheeler, men who, in the role of scientists, ruthlessly looted every ancient cemetery to which they had access, with the sole object of acquiring relics that would sell.

Chief of these early "pot hunters" was the Rev. Stephen Bowers, sometimes itinerant preacher, at other times editor of a country newspaper, of whom it has been said: "He mingled a goodly proportion of science with his theology." This pseudo-savant, when pressed for reasons for his indiscriminate looting of graves, was prone to publish verbose articles in the weekly press which are compendiums of towering misinformation. He gives a detailed description of what we know to be a pipe drill, and explains that "it served the double purpose of a rasp and a spear head," which is ingenious but hardly convincing. He classifies stone pestles as "war clubs," and speaks casually of the discovery of one skeleton beside which lay a "stone war club, a copper harpoon head, and an iron spear head," and enthusiastically exclaims that in this grave we have evidences of an individual who had lived through three ages of man, the Stone Age, the Bronze Age, and the Iron Age. We would prefer to think that he had found the grave of an ordinary Canaliño who had bartered with the Spaniards.

Another tireless relic hunter was one Francisco Leyva, nicknamed "Chico," a native Californian, accomplished in the many homely arts that made his services as guide and camp rustler indispensable to camping parties. During the intervals when he was not acting as guide, he led a lonely life, locating and looting the Indian cemeteries that by some miracle had escaped Bowers' spade. The contrasting methods adopted by these two master relic hunters are worthy of comment.

Bowers, an accomplished slave driver and void of reverence, was constantly urging his employees to greater effort. As a consequence, wherever we investigated one of his known fields of operation, we found nothing but a chaos of broken human remains, and a heap of objects discarded as unsalable. A known Leyva field, on the contrary, shows superficially only a smooth, level plot. Upon excavating here, we find on the bottom of the former grave every bone intact and carefully laid away, with such of the artifacts as "Chico" considered unsalable, and the surface leveled as it was originally.

Leyva wrote no brilliant essays for publication, but in another way he surpassed his reverend contemporary. He took orders in advance for certain rare relics that *he was about to discover*, and never failed to deliver them. Many of these are

still in existence, and the majority of them reveal very interesting features when carefully examined. A few at least of these are in a prominent museum at this day.

The above paragraphs, I believe, summarize every operation that may be considered as coming under the head of archæological activity in this vicinity up to the year 1923.

For a number of years, however, intensive ethnological investigations have been carried on among the few remaining individuals of the race that once occupied the region. Thus, during the eighties, Mr. H. W. Henshaw did a great deal of research work among the scattered remnants of the people who were living at that time, several of them of an older generation. The results of his labors are of immense value to the present student.

Chief among the tireless investigators in this field is Mr. John P. Harrington. While the complete results of his labors are as yet not available in popular form, Mr. Harrington has nevertheless accomplished wonders in collecting the vocabularies and traditions that still linger in fragmentary form among the pitiful and constantly diminishing outcasts from the land of their fathers.

KEY TO MAP OF SITE LOCATIONS

- |                    |                       |                       |
|--------------------|-----------------------|-----------------------|
| 1. "Shuku."        | 35. Barger No. 1.     | 67. Corona No. 2.     |
| 2. Stanley.        | 36. Barger No. 2.     | 68. West of Winch.    |
| 3. Cate.           | 37. "Ushtahash."      | 69. Winchester No. 2. |
| 4. Franklin.       | 38. Modoc Road.       | 70. Winchester No. 1. |
| 5. Bailard.        | 39. Cieneguitas.      | 71. Winchester No. 3. |
| 6. Higgins.        | 40. Hope Cliff.       | 72. Tecolote No. 1.   |
| 7. "Mishopshnow."  | P. County Farm.       | 73. Tecolote No. 2.   |
| 8. Sandyland.      | 41. San Marcos Rd.    | 74. Tecolote No. 3.   |
| 9. Lyman's No. 1.  | 42.                   | 75. Tecolote No. 4.   |
| 10. Lyman's No. 2. | 43. East side Goleta  | 76. Eagle Canyon.     |
| 11. Lyman's No. 3. | Slough.               | 77. "Kuyamu."         |
| 12. Serena.        | 44.                   | 78. "Mikiw."          |
| 13. "Kolok."       | 45. Twin Mounds.      | 79. Dos Pueblos.      |
| 14. Drake.         | 46. "Helo."           | 80. Los Gatos.        |
| 15. Underhill.     | 47.                   | 81. Las Llagas        |
| 16. Ortega Hill.   | 48. South side Goleta | No. 1.                |
| 17. "Shalwaj."     | Slough.               | 82. Las Llagas        |
| 18. Blue Bird.     | 49.                   | No. 2.                |
| 19. Miramar.       | 50.                   | 83. Las Llagas        |
| 20. "Swetete."     | 51. Campbell No. 3.   | No. 3.                |
| 21. Vivian.        | 52. Campbell No. 2.   | 84. "Ajuahuilash-     |
| F. Flores.         | 53. Campbell No. 1.   | mu."                  |
| 22. "Kashwa."      | 54. Corona del Mar.   | 85. Corral.           |
| 23. Dixie.         | 55. Williams No. 4.   | 86. Refugio No. 1.    |
| 24. Lone Pine.     | 56. Williams No. 3.   | 87. Refugio No. 2.    |
| 25. "Taynayan."    | 57. Williams No. 2.   | 88. Refugio No. 3.    |
| 26. "Siuh tun."    | 58. Williams No. 1.   | 89. Tajiguas No. 1.   |
| 27. "Amolomol."    | 59. East of W'ms.     | 90. Tajiguas No. 2.   |
| 28. Burton Mound.  | 60. Libbey.           | 91. La Quemada.       |
| 29. El Banos.      | 61. Stow.             | 92. Park.             |
| 30. "Mispu" No. 2. | 62. Larson No. 2.     | 93. Piedra de Amolar. |
| 31. "Mispu" No. 1. | 63. Larson No. 1.     | 94. Alcatraz No. 1.   |
| 32. Arroyo Burro.  | 64. McCaffery.        | 95. Alcatraz No. 2.   |
| 33. "Mismatuk."    | 65. Sexton Hill.      | 96. Gaviota No. 2.    |
| 34. James.         | 66. Romo.             | 97. Gaviota No. 1.    |

## CHAPTER II

### DESCRIPTION OF SITES

NOTE: In the following descriptions of the sites of former Indian villages, references are made to three distinct cultures. In subsequent chapters these three cultures are described in detail. The sequence in time is as follows: First, People of the Oak Grove; second, Hunting People; third, Canaliño.

#### (1) "SHUKU"

SINCE its discovery by Cabrillo on October 10, 1542, Shuku ("Xucu"), "Pueblos de Los Canoas," has served as a prominent land-mark in the study of the coastal Indians of California. Historians have located the village in various spots, from the vicinity of Ventura to that of Santa Barbara, but the consensus of opinion places it, from the many physical features mentioned, at the mouth of Rincon Creek. This supposition is greatly strengthened by the corroborative evidence of the Font manuscript (1776). If any doubt as to the former location of Shuku still exists, one has but to turn to Fr. Crespi's chronicle of the expedition commanded by Captain Gaspar de Portola, which, according to this chronicler, on August 16th, 1769, came to the village several leagues "west of San Buenaventura," at the mouth of a goodly creek with fresh, running water that empties into the sea; but before it empties is obstructed by sand dunes, forming an estuary." At that time, the village consisted of sixty large, spherical huts, thatched with grass, "and they had seven large canoes out in the ocean fishing," justifying the first European name it bore, "Los Canoas," applied by Cabrillo over two centuries earlier. Fr. Crespi mentions that the chief of the village "being a great dancer," the soldiers of the expedition dubbed the place "El Pueblo del Ballerin," "but I called it Santa Clara de Montfaleo," he quaintly adds.

I can learn of no systematic or careful investigation of the site at any period. There are persistent traditions that the French scholar, Cessac, worked here during the early seventies, but I could not verify these reports. There are those living, however, who assert from personal recollection, that, during

the seventies, the tireless Stephen Bowers conducted extensive operations here in the search for relics.

Many extravagant tales are told of the extent of his finds, some even repeating the tradition of "ten tons of relics" taken from the graves at this place. While this estimate doubtless is exaggerated, we must concede to Bowers an indefatigable zeal in pursuit of his hobby, at a time when this avocation was a most unusual one. The results of his labors were probably very rich. But, so far as I have been able to learn, no data were ever kept of these finds, nor was any effort made to retain the objects in association with other objects found in the same locality. Each relic appears ultimately to have reached that curio seeker who could outbid his competitors. The results of Bowers' tremendous efforts at Shuku are now entirely lost to science.

Other excavations have from time to time been carried on in this vicinity by enthusiasts, usually curio seekers, spending infrequent holidays in the overturning of an already much disturbed bit of soil. Scholars seeking information have occasionally visited the site, but these have been in the minority. Mr. Catlin, brother of the Catlin Brothers who own the site of Mishopshnow, did considerable excavating here several years ago, and the results are now in the possession of Mrs. Catlin. More recently, in 1922, Mr. W. C. Toby, of Carpenteria, in company with the late Mr. Jesse Wood, during a holiday sank a pit near the western cairn of grave markers on the brow of the hill, and made several very desirable finds. These have been largely dissipated, Mr. Wood's share now being in the Museum of the American Indian, Heye Foundation, New York City.

The site of Shuku is of such wide extent and so diversified in topography that it is difficult to describe even roughly, and impossible to map without instruments of precision and assistants. It is situated upon a somewhat irregular "L" shaped tract, curving about the base of Rincon Mountain and lying between it and the sea. It is about eighteen miles southeast of Santa Barbara, adjacent to the Coast Highway where it crosses the line that separates Ventura and Santa Barbara counties.

The eastern arm of the "L" shaped site is a flat, sandy strip of land only a few feet above high tide. It is perhaps one-fourth of a mile long by twenty rods wide. This part of the site was probably the location of historic Shuku. Where

this section of flat land rises slightly to meet the mountain at its back, is the scene of the early relic-hunting activities, and it was from here that Bowers took nearly if not quite all of his treasures.

The northwestern arm of the elbow-shaped site is separated from the eastern arm by Rincon Creek, which here expands into a pronounced estero, hemmed in from the sea by sand dunes. From this estero, the ancient site rises sharply to the northwestward by a succession of benches, a total distance of one-half mile, the farthest portions capping high bluffs, probably one hundred feet in height, overlooking the sea on the one hand and the canyon of Rincon Creek on the other. I can find no evidence that this northwestern extension has been occupied within historic times, although at one time it supported a teeming population for a long period, as is shown by the almost unbelievable quantities of camp debris that blankets the site.

The southern extremity of this division of the village rested upon a high point of land, which overlooks the estero at the mouth of the creek, and here the unadulterated refuse reaches a depth of six feet, even after many years of erosion. I believe it was the site of the longest occupancy and that it may have endured to historic times. Immediately above this, to the north and on the next higher bench of land, is the location of my excavations.

It was evident, from the time of my first visit to the locality, that this apparently ideal location had never been used for dwellings. This puzzled me greatly, for it appeared to have all the features that appeal to the primitive mind. It was high, level and slightly, closely adjacent to water, with settlements on every hand. The experience of the two closing days of my operations on that bench solved the riddle to my complete satisfaction. Its natural conformation leaves it the prey of every wind that blows. It is even possible that the conformation is the direct result of these same winds. Whether from the sea or from the land, every breeze is converted into a fierce blast, as it is concentrated in the throat of Rincon Gorge, making it almost impossible for a man to stand upright unsupported.

At the center of this wind-lashed bench and about four hundred feet northwest of the center of the longest railroad section house, is the site of a former small cemetery, elliptical in out-

line, about fifty feet long, with a northeast and southwest axis, and thirty-five feet wide. Near the southern limit of this area was a prominent cairn of flat, elliptical boulders, foreign to this tract. Twenty-five feet to the northeast of this pile and near the eastern border of the cemetery, was another cairn of smaller proportions but of similar stones. I now know that these cairns were built of slabs that had formerly protected the graves and had been thrown into heaps by relic hunters as they opened the soil. As I progressed, I uncovered many similar slabs that had been removed from their position by relic hunters. See Plate

61 ~~55~~. Scattered among these markers were great numbers of fragments of stone bowls, representing many sizes and kinds of material, but all conforming to one type in shape, a type that I have grown to recognize as characteristic of one stage of Shuku culture.

One hundred and fifty feet northeast of this plot was a large, earth-bound boulder having a circular symbol cut upon its upper surface. It was impossible to determine whether this was an example of Indian handiwork or of more recent origin.

For several days, I carried on a systematic exploration of the cemetery by means of longitudinal and transverse central trenches and a few laterals, covering in all some six hundred square feet of surface. This served to reveal the conditions that prevailed, and the size and shape of the plot. A great part of it had been thoroughly gone over by others. A few undisturbed spots were found, and in a few instances, the looters had failed to reach the lower levels of the graves and had thus missed a part of the relics. The disturbed soil was plentifully strewn with debris from the graves, the most common being fragments of human skeletons in a good state of preservation, broken stone vessels, and quantities of small, native-made beads of several types.

Beneath the disturbed conditions, I found a formation that at that time puzzled me greatly. It was dark brown in color and very hard to excavate, and, as a matter of course, I avoided the exploration of it to a large extent. At a few places, I sank pits through it, finding it to extend to a depth of about twelve inches, where it rested upon the hard, gravelly, undisturbed base of the hill. This tough, brown stratum contained many fragments of shells imbedded in it and at its very base I found

two ancient, oval hand stones and a fragment of a primitive metate. Not realizing the true significance of this formation, I carried the investigation no farther. I now realize that I had here a splendid example of the superimposition of cultures, a condition much sought by archæologists, and that this was the best defined case that had come to my notice. I was fortunate enough to find a few other examples at a later date, and learned from their study to interpret this earlier find.

In ancient times, when the surrounding hillsides were in all probability clothed with a forest of live oaks that served to break the intensity of the gale that now sweeps over the denuded bench-land, the People of the Oak Groves had established a settlement here. They had maintained this for a considerable period, judging from the depth of the deposit, which was made up of the discarded food refuse trampled into the mud washed from the hillside by torrential rains. I made no detailed study of the surface of this deposit, as I did, later, in other exposures, but I feel sure that it would have proved interesting as a record of long periods of erosion before the advent of other culturally different people.

The people who next arrived on the scene were, judging from parallel discoveries elsewhere, of a cultural type almost at the exact borderland between the Hunting People and the Canaliño. The remains of this people have been so thoroughly confused by relic hunters, and so many of their artifacts removed, that their positive assignment to a definite period is difficult. Broadly speaking, the crude efficiency of the products of the Hunting People, as found in their purity, appears in this location to have been replaced by a class of artifacts of a much higher order, but not attaining the standard of the later Canaliño. No object of Caucasian origin was found in this place; this is almost conclusive proof that this particular burial spot was not used after the advent of the whites. I believe it to be almost equally certain that it was not used for a long period antedating that event. This cemetery should under no circumstances be confused with the great burying ground on the low land to the east, the scene of Bowers' activities, for this bears every indication of having functioned to a much later period.

The two thousand or more beads recovered may be easily separated into groups, each one representative of types figured

and described by Abbott. The sandstone vessels, of which there were many fragments present, were all of a squat, orbicular form, with angular rims. These ran in size from that of a small cup to those holding two gallons or more. I am inclined to believe that the number of broken vessels indicates that a burial ceremony involving the breaking of vessels was in vogue; in some instances I found the "plug" that had been driven out from the bottom. The most interesting articles recovered were four pipes of three distinct types. One flattened specimen, of the size and shape of a human palm, is, I believe, unique. Two others are of the familiar cigar-shaped variety, while the last is elbow-shaped and of slate, reminiscent of the pipes of prehistoric northern Mexico.

I have but little doubt that there were upon the high land to the northwest other and larger cemeteries, probably undespoiled by relic hunters. The immense scope of the debris-strewn site, and the limited period for investigation at my disposal kept me from putting my belief to the test.

## (2) STANLEY

Near the eastern bounds of Santa Barbara County, and at a distance from the sea, is the pleasure resort known as Stanley Park. The better known portions of the grounds coincide almost exactly with the bounds of an ancient Indian site. The remains of this village have now been almost totally destroyed by modern improvements.

## (3) CATE

On the crest of a high ridge, which borders the southern side of Gobernador Canyon to the northeast of the town of Carpenteria, is a somewhat limited deposit of kitchen debris, evidence I believe of seasonal camps of the Indians during hunting or harvesting expeditions.

## (4) FRANKLIN

About one and a half miles north of Carpenteria, Franklin Canyon emerges from the mountains. Within its throat is located a modern camping resort. At the point of entry to this camp ground, on looking to the left across the creek, one sees the Franklin ranch-house perched upon the crest of a high,

abrupt knoll. Examination of the soil of the adjacent grounds shows that the buildings are set in the midst of a former Indian site.

Near the residence are to be seen numbers of interesting artifacts that have been unearthed in the course of improving the grounds. These, to a large extent, belong to the first culture epoch. A few are of the Canaliño type, and the upper strata of the camp debris can be ascribed to no other source than Canaliño occupancy. Although I was not able to make a thorough investigation here, I venture a guess that the time during which the Oak Grove People occupied the site greatly exceeded that of the people who succeeded them.

#### (5) BAILARD

About three-fourths of a mile to the northeast of the sites upon the Higgins Ranch, and nearly due east of the town of Carpenteria, crowning a prominent hill that rises abruptly from the southern side of Carpenteria Creek, about the modern ranch buildings that now cap the rise, are abundant evidences that an important Indian settlement once existed there. Bits of shell are scattered throughout the soil, and it is not unusual to find artifacts, when the soil is disturbed by cultivation. The proprietor of this holding informs me that at one spot he seldom fails to disturb ancient burials, whenever he breaks the surface of the soil. I made no thorough exploration of this place, but from the conditions surrounding it and the evidence offered by the artifacts seen and said to have been taken here, I should say that it had been occupied first by the Oak Grove People and then by the Canaliño.

#### (6) HIGGINS

Elsewhere I have attempted an outline description of the great site of "Mishopshnow," upon the Catlin tract, to the southeast of Carpenteria. Immediately to the east of the tract lie the Lucien Higgins holdings, on which are a diversity of remains of considerable interest.

Near the coast line and filling the space that lies between the Southern Pacific right-of-way and the sea cliff, is a dense bed of kitchen midden that reaches in places to a depth of four feet. This debris, in cross section, shows marked stratification;



Result of Engineering Activities in the Higgins Site Near Carpeloria, Showing the Stratification  
of Indian Camp—Debris Resting Above a Bed of Asphaltum



“Fig Tree Mound,” “Mishopshnow,” as Seen from the West During Our Excavations

there can be little doubt that the lower reaches are of great age. Beneath this stratum of refuse, one comes to a sandy structure, heavily impregnated with asphaltum, through crevices of which at irregular intervals almost pure asphaltum seeps. This bitumen content increases as we go deeper, and at last we enter a stratum in which are found imbedded plants and other remains of the Pleistocene Period, proof that a more humid climate prevailed at that time.

The first human arrivals in the region had apparently been attracted by the pitch that still oozed from the sand, and had settled at its borders. As the ages passed, the encroaching camp debris finally blanketed completely the sticky residue of the crude mineral oil that had formerly made its way to the surface. When at last a higher type of man peopled the site, the only evidence of pitch seepage was along the face of the cliff, below the level of the kitchen refuse. No cemetery was found here and but few artifacts were found.

Extending north from the eastern end of this site, and separated from it by an unoccupied interval, is a rather extensive site, over one thousand feet in length. The artifacts uncovered here were undoubtedly those left by the Hunting People and the quality of the camp refuse appears to coincide perfectly with that of other known sites of this culture.

Lying in the angle formed by the two sites just described and separated widely from each, was once a unique cemetery. The graves had been sunk in rather hard alluvium that bore no trace of camp refuse, and were many yards from any known former camp ground. Over thirty-five years ago, Mr. Higgins, as a boy, had located this cemetery by the numbers of flat grave markers that cumbered the ground, and had excavated it so thoroughly that little of interest remained. As he remembers it, he unearthed no less than one hundred and fifty skeletons. According to his account, the burials differed radically from those frequently encountered at the neighboring site, Mishopshnow. The heads were markedly longer and narrower. The personal accompaniments, of which there was an abundance, were of a distinct type, a checker-board design of carving being very much in evidence. There was also an abundance of cinnabar present in the graves; some of this material in the natural state had been wrought into beads and pendants; in other instances,

it had been calcined and apparently used as a paint, in place of the red ochre that is so frequently found under similar conditions. A point of chief significance was the fact that all the bones were very much decomposed.

I was, of course, very much interested in these reported finds, and proceeded to ransack the site thoroughly, but only the most fragmentary material fell to my lot. This, however, as far as it went, tended to verify, in every particular, Mr. Higgins' testimony. Bits of cinnabar were scattered through the soil, and there was a red tinge in portions of the graves that was too brilliant to be ascribed to ochre. Bits of broken steatite vessels were deeply cross-hatched in design. The bones had nearly vanished, so that a check on possible cranial variations could not be made. The meaning of this isolated, unique cemetery is still a profound mystery to me.

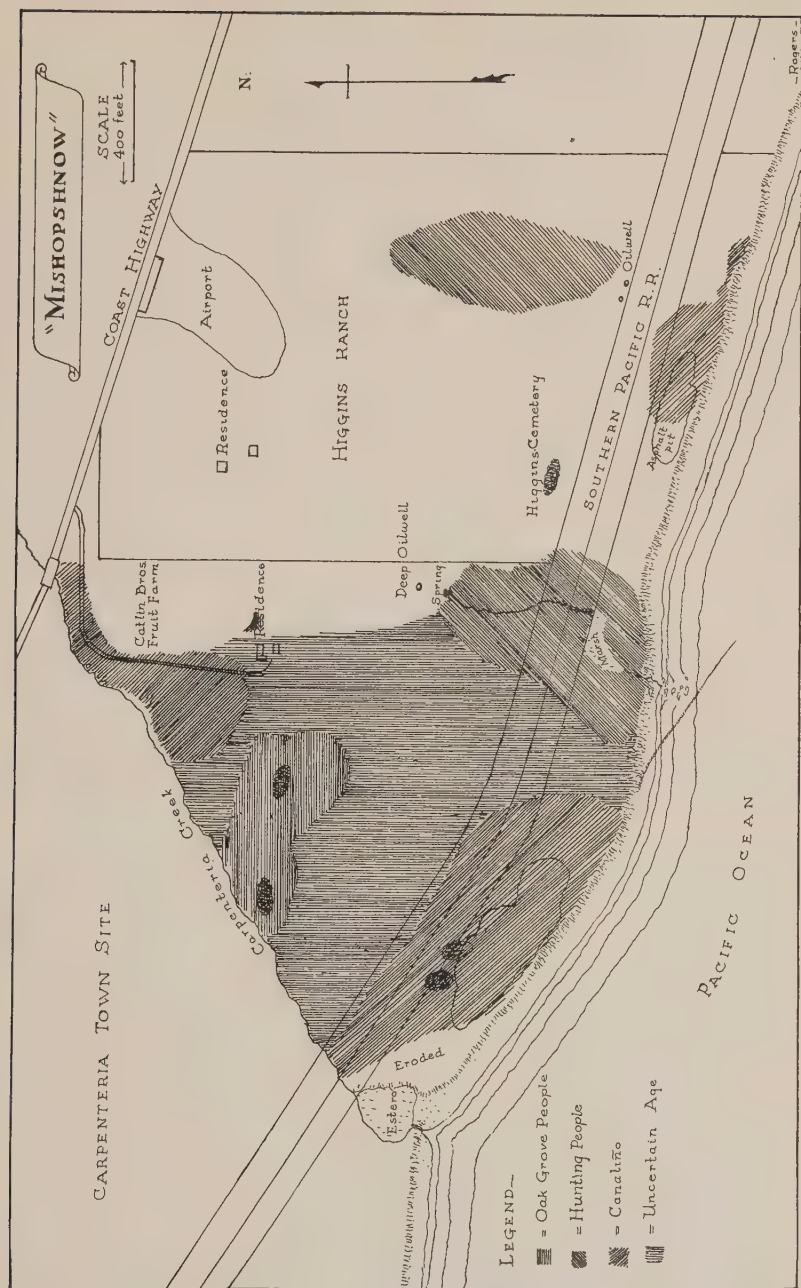
(7) "MISHOPSHNOW"

Excerpt from the Font Manuscript

*Translated by MR. JOHN P. HARRINGTON*

February 25th, 1776. . . . "At a distance from Rincon of two leagues (in reality it was one league) we reached the rancherias of San Buenaventura (Saint Bonadventure) which are two (Mishopshnow and Kolok) one at each side of a plain about one league long (Carpenteria Valley) where it was intended to establish the Mission of San Buenaventura, which is already endowed, but which was not founded because of lack of supplies. It (Carpenteria Valley) has some pasture land, plentiful live oaks (especially in the vicinity of Kolok), but little water."

During the season of 1925, I explored the greater part of the great aboriginal site of Mishopshnow. I am convinced that here was once located the largest mainland village between the mouth of Gaviota Creek and the Rincon, with the possible exception of one of the rancherias that flanked Goleta Slough. Roughly speaking, the site extended from the estero at the mouth of Carpenteria Creek, eastward along the tops of the low cliffs that here border the Pacific Ocean, for approximately three-quarters of a mile, and at the farthest point to the north, to



MAP No. 2



over three-quarters of a mile from the beach. At this northernmost part, the village appears to have ended on the high, sandy knoll that forms the southeastern bank of Carpenteria Creek, which flows in a southwesterly direction. All of the area enclosed within the bounds of this roughly triangular outline, gives every indication of having been occupied for a long period of time by a dense population.

The Southern Pacific right-of-way runs parallel to the coast line, and on an average three hundred feet distant from it. This holding, two hundred feet wide and extending from the creek to beyond a barranca three-quarters of a mile to the east, has cut through deep kitchen midden the entire distance, and in the process of grading, has destroyed most of it. Between the right of way and the low sea cliffs was once another unbroken strip of this same kitchen debris. Much of this has also been removed, although fragments still remain.

The pitch spring, which from time immemorial had trickled from the cliff at the water's edge and had doubtless been largely instrumental in retaining the great prehistoric settlement at this place, in later times and under the control of another race, led to the devastation of a large area of the coast lands in the vicinity. With the growing demand for asphaltum for road building activities, more and more of the enormous bed of camp refuse that capped the deposit was sluiced away, and the pitch that lay beneath removed.

Today, if one stands at the location of the former asphalt spring, he sees before him, extending from the beach line to the railroad right-of-way and to the right and left for several hundred feet, a yawning crater, devoid of soil and vegetation, except where a few tules cling to the rim of a fetid lagoon at the bottom of the pit. West of this abandoned pit-mine, the activity of many wheels incident to the working of the mine, coupled with periodic winds, has swept the land bare, down to the tough sub-soil.

By consulting the accompanying map, one sees that fully half of that part of the original Indian site that lay between the railway and the sea has been totally effaced. Moreover, this was probably the most important part of the later settlement. Middle-aged men, who as small boys prowled about the cliffs of the vicinity or dug into the mounds in search of relics, de-

scribed the conditions then existing. A ragged fragment of the original surface, projecting from the railroad right-of-way towards the crater of the mine, was pointed out as the location from which many choice relics had been unearthed. I investigated this plot thoroughly and in spite of the destruction wrought by the workers of the mine and by former relic hunters, I succeeded in establishing a fairly definite boundary for the cemetery that had once been located there. This I accomplished by noting the limits of the soil that was fairly packed with vestiges of human bones. A few artifacts, that had been overlooked by others, were in every instance typically Canaliño. No trace of the white man's products was seen. I also found two undisturbed burials, Canaliño males with fine flint weapons as accompaniments at their sides. Three partial skulls taken from the wreckage of other excavations were also those of males; hence I have designated this plot as "men's cemetery."

I was also told that a short distance to the east had once been another burying ground, from which many large stone bowls had been taken. I took up the search here and found that a small fragment still remained. Beneath the line fence that bounds the railway holdings were three female burials. I have since learned that a local relic hunter recently took two other female skeletons from just inside the fence. The three that I discovered were each decorated with staurotide beads of a high order of workmanship. I understand that the others found by the relic hunter were similarly decorated. On the strength of these finds, I call this eastern burial plot the "women's cemetery." As nearly as I could determine, the two burial plots had been of nearly equal area, elliptical in outline, the longest diameter extending northwest and southeast. They had been parallel and closely adjacent, although the men's cemetery had occupied a more elevated location than the women's. Each had been approximately eighty feet in length and a little more than half that width.

Judging from other sites, I should say that upon the level terrace to the southwest of these plots had been the dance platform which, also judging from other sites, would be laid out in the same direction as the cemeteries, i. e., northwest and southeast. In this vicinity also were probably the "temescal" and council compound. Near the pitch spring there were probably

great boat-building activities. A rather dense aggregation of huts, probably not less than one hundred, were grouped in the immediate vicinity.

Continuing my survey to the east, I found that the appearance of the remains underwent a marked change. About the spring-fed barranca and the small marsh near its mouth were vast deposits of camp debris, practically undisturbed except where the railroad had cut a passage. There was much less of the greasy, sooty element in the soil here and a much heavier content of coarser materials. The artifacts were markedly different, being heavier and more crudely formed. The milling stones were invariably of the simple basket-mortar type, the pestles rather small and rough. The weapons were plentiful, large and heavy, and lacking in refined finish. No beads whatever were encountered, although a few striking stone pendants were found. Asphalt was found in very limited quantity, not enough to suggest boat-building activity.

Many acres were covered by this kind of material, although it was chiefly centered along the brink of the marsh. No cemetery was found that I could ascribe to this section, although Mr. Lucien Higgins informs me that in early days he had frequently plowed out skeletons along the southern side of the marsh. I discovered one well-preserved skeleton in the great shell heap at the northern side of the railroad cut. This was of a short-headed, high-browed, long-faced individual, very different from the accepted type of the Canaliño. The result of my investigation at this point was far from conclusive, but I think it safe to hazard a guess that about this spring-fed marsh, at a comparatively early period, there lived a flourishing group of the Hunting People.

Directly north of the last described division of the great site, beginning where the Coast Highway crosses Carpenteria Creek and following the southeastern bank of that stream to nearly opposite the ranch buildings, is a low, sandy flat that shows distinctly by the contents of the soil that it was long a camp site of the Canaliño. This is now so closely set to fruit and so thoroughly cultivated, that detailed study is impossible. I did, however, find evidences of a small cemetery near the southern bounds of this site, and also records of the fact that during the reduction of a mound that formerly occupied the

northern extremity, workmen were obliged to dispose of quantities of human bones and artifacts. There can be little doubt that the culture represented here is the third, or Canaliño.

I come now to the fourth and last division of the site that I was permitted to study with any degree of thoroughness. About a third of a mile north of the pitch spring and rising high upon the southern bank of the heavily wooded creek, is a prominent knoll that shows even on its surface many interesting indications. Wishing to obtain the exact location of this mound, I consulted the proprietors. Mr. John B. Catlin kindly pointed out the location of the buried survey monument, No. 12, established by A. W. Dozier, in 1914, during the mapping of "El Rincon Rancho." Mr. James Catlin kindly obtained the data, and together we definitely established monument No. 12 as just inside the northern boundary of the mound and slightly west of the center on that side.

Sixty-two feet southwest of this monument stands a thrifty young fig tree, and as it will probably endure for many years to come, I have adopted it as a permanent land mark and termed this particular site "Fig Tree Mound." This fig tree stands near the western limits of the mound and about midway north and south. The longest diameter of the ellipsoidal mound extends eastward from the tree a distance of one hundred and seventy feet; the shorter diameter measures about ninety feet. The height of the apex is perhaps six feet above the general surroundings. Man and the elements have undoubtedly modified the original contour to a considerable extent. An irrigation pipe-line bisects the mound by way of the longest diameter, but slightly north of the exact center. Tapping this pipe-line every twenty-five feet are outlets protected by upright cement cylinders. The terminal outlet to the west is six feet north of the fig tree. An old olive orchard encroaches upon the southern boundary of the mound, and several young lemon trees occupy its northern slope.

Almost directly east of this mound and separated from it by several hundred yards, is another mound similar in every respect, except that it is much farther from the creek bank. I believe, however, that at the time of its occupancy, the oak forest reached to it, as it now does to its companion. Over the surface of each of these knolls, I found masses of typical camp refuse of which

fragmentary shell forms a large percentage. Several ancient oval manos and fragments of metates were also in evidence.

I decided to make initial excavations at the "Fig Tree Mound," as it appeared to offer the greatest promise. A wide trench was begun close beside the fig tree and driven due east along the southern side of the pipe-line, directly into the heart of the mound.

To a depth of thirty inches, the soil disclosed little change from that shown upon the surface. It was all clearly of artificial character, the result of long occupancy and of the unsanitary customs of the villagers. Below the thirty-inch level I began to come in contact with a series of huge, crudely formed metates. In the majority of cases these were found face down, though a few were face up. These occurred at almost any depth from thirty to sixty inches below the surface. Not one of these weighed less than forty pounds, and the largest at least one hundred. Those of the upper layer were in a fair state of preservation, but as I went further down the evidences of disintegration became more and more marked, until the lower specimens were found to be hopelessly frail, falling to sand on being handled. Beneath each of these rude utensils were noted the vestiges of a human burial that had been placed in the grave in a prone position. These, too, showed more and more the passage of time as I got deeper into the earth. In the deepest graves examined, sixty-eight inches beneath the surface, in the sand of the original hill, it was with difficulty that I could trace the outline of the bones and it was impossible to salvage them.

Not all burials were overlaid with the cumbersome metates. Seventy skeletons were examined, but only forty metates encountered in the process. But in the majority of cases there had been a studied effort to embellish the grave. One had been burned before the body had been consigned to it; another had been floored with slabs of whale bone, now little more than powder; several were filled with a composite soil that appeared to be a mixture of clay, ashes and beach sand, all foreign to the surrounding soil. By far the most common form of embellishment was a small cluster of flat stones, closely laid above the body. (See Plate No. 53.) These bore every appearance of having once rested upon the surface, but in several instances

I found that they had been buried by the slow accretion of fine debris several feet below the surface, a striking indication of the length of time that they had lain there.

Nearly one hundred oval manos were recovered in the course of the excavation. Minor artifacts were extremely rare. Aside from two massive utensils made from the leg bones of a deer, found against the backs of skulls and hence termed "hair-pins," and an abundance of red paint, nothing which could be construed as a personal ornament was found. However the dearth of ornaments in this cemetery does not prove that this people had no sense of decoration. The great lapse of time since the bodies were laid away would easily dispose of any small object of bone or shell, and of course feather and quill work and fabrics would have left no trace. Armament was only slightly better represented. A very few extremely crude flint knives, barely retouched flakes, and arrow heads, hardly recognizable as such, were the only objects of this class. In one grave a fossil clam shell had been placed.

I made a less extensive investigation of the companion mound to the east. A trench put down near the crest reached the original yellow sand of the hill at sixty inches, through soil conditions very similar to those of the "Fig Tree Mound." Beneath the many beds of debris which had apparently lain undisturbed for ages, I found, resting upon the original surface, a human skeleton lying at length upon its back and far advanced in disintegration. I carried the investigation here no further, but feel quite sure that any condition found in one mound may be approximated in the other. In fact, so far as I could determine, they are the remains of twin villages.

From the results of several weeks of investigation at this site, I should draw the following inferences. Near the dawn of human activities in this region two small groups of primitive savages established their camps, not far distant from each other, upon the crest of a sandy ridge that bordered the oak grove fringing the southern side of Carpenteria Creek. With every facility for comfort at their doors, there appears to have been no incentive to change their modes of life or to remove from the site throughout a long period of time. This is shown by the enormous mass of close-grained debris which after years of modification by man's activities and of erosion by natural agencies, still reaches

to a depth of five feet and over upon the mounds proper, with a prodigious overflow to the surrounding territory.

The first interments here were in shallow graves cut in the original surface of the hill. As centuries passed and the debris accumulated, the burials were placed at a constantly higher level. Hence I frequently found burial above burial, sometimes as many as four in succession. There was little evidence of re-burials here. In every instance the burial that lay above bore every appearance of being more recent than the one that lay beneath it, a decided contrast to conditions frequently met with in the cemeteries of the Canaliño. No noticeable advance was made in the culture of this group throughout the long tenure of their occupancy, which evidently endured for many centuries. It is equally evident that they vanished completely centuries ago.

My readers may ask why there was no evidence here of the fossilized kitchen-midden that has been noted in many other sites of the "Oak Grove Dwellers." I believe the answer to be clear. In the location where this stony material is found, the sub-soil has invariably been of a hard, impervious nature. This has prevented the free passage of the mineral solutions leached down by the rains throughout the ages, and these have reformed above the point of their obstruction. In the case of the "Fig Tree Mound" formation, the loose sand of the sub-soil offered no such resistance and the solutions passed downward without check. There is every reason to believe that the superimposed camp debris is as thoroughly decomposed and leached as any that we have studied.

The twin mounds beside the creek had probably long been deserted, when an alien horde appeared beside the spring-fed barranca, a quarter of a mile to the southeast. This virile race of heavily armed hunters proceeded to heap up a vast accumulation of debris from their feasts. This is found practically as they left it, remains of various foods in well-preserved layers, shell-fish, fish, crabs, seal and land game, of which deer forms no small part. This refuse is in perfect condition, disintegration having hardly begun.

This people, too, vanished or were absorbed, at about the time of the arrival around the pitch spring to the west of a great throng of culturally advanced barbarians, addicted to forms and ceremonies and extensive bodily ornamentation, and with seafar-

ing activities unknown until their arrival. Again we have a settlement that endured for centuries, which built up a dense blanket of debris and packed its cemeteries with the departed.

Since this village was well known long after the advent of the first white men, the fact that no objects of white manufacture were found here is hard to explain.

I have endeavored to solve a few of the problems presented at this site. I have passed by many others. To the southeast there are at least two other adjacent villages of considerable extent, whose relationship to the above-mentioned site is undetermined. An apparently isolated cemetery exists near by, the remains, perhaps, of a race heretofore unencountered. (See p. 47.)

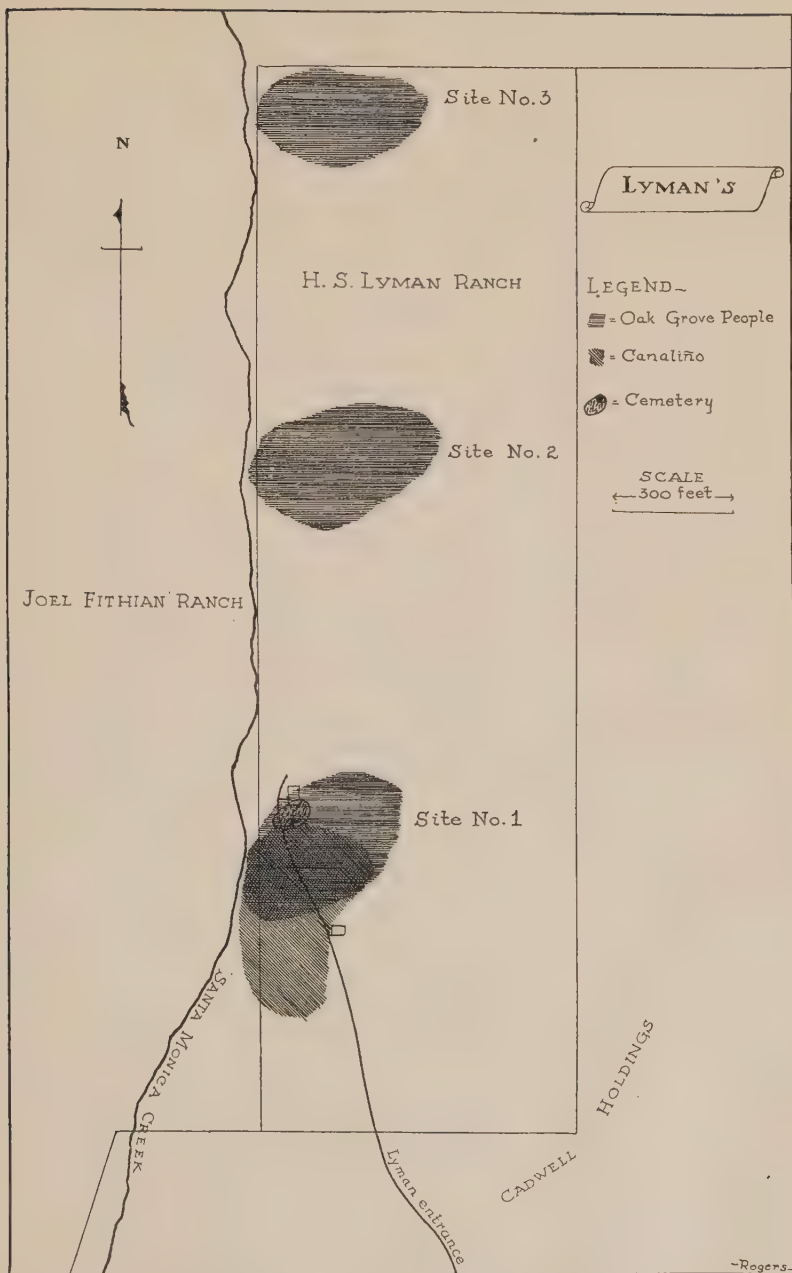
We are still ignorant of the age and meaning of the great sheets of camp refuse that link up and unify the four nuclei that we have described. Nearly every square foot of the Catlin tract, of the railroad right-of-way, of the belt lying between the railroad and the sea, and also of large portions of the Higgins holdings displays or has displayed liberal sheets of camp debris.

#### (8) SANDYLAND

Near the extreme outer angle of the low point of land upon which are located the beach cottages of Sandyland, two miles west of Carpenteria, one may see, at a few spots, evidences of the former existence of an extensive Canaliño village. This is now almost obliterated by encroaching sand dunes. This is probably the site of old "Teneknes," tentatively located near here on Kroeber's map.

#### (9) (10) (11) LYMAN'S

The small fruit farm owned and occupied by Mr. Henry E. Lyman is a portion of the former Caldwell ranch; it lies a quarter of a mile north of the Valley Road and skirts the eastern brink of Santa Monica Gorge. This holding is about one hundred rods in depth and rises rapidly toward the north. Within its confines may be found the remains of three former village sites, about forty rods apart, occupying three successive stages in elevation. The sites are unsurpassed in beauty of scenic outlook, having at their feet the entire Carpenteria Valley from the Rincon to Serena, with the island-rimmed channel beyond



MAP No. 3







and the wooded mountains behind. With fresh water, and with the oaks from which their living was derived, growing in abundance about them, the people of this particular cluster of villages lived in a primeval paradise.

The largest and most highly developed of the three sites is the lowest in altitude and has the most southerly location. The site of this most important of the three villages is now largely occupied by the residence and grounds of Mr. Lyman. In the course of improvements carried on here, a great number of objects of primitive manufacture have been unearthed. These are now distributed about the premises in various useful or ornamental capacities. They consist, principally, of huge ancient metates and manos, a few orbicular mortars, and many pestles and hammers. Mr. Lyman very kindly gave the Museum its choice of these, and a number of heavy, leaf-shaped arrowheads that had been collected from the surface.

No excavation was attempted within the bounds of the two upper villages, but a superficial examination brought out the fact that a great number of manos and fragmentary metates litter the surface, and that the rather tough black soil is quite thickly shot with shell refuse and not a few bones. I chose to confine my chief activities to at least a partial analysis of the problems presented by the lower site, the soil of which appeared more mellow, with a greater content of camp refuse than that of the two higher sites.

In former years Mr. Lyman had taken numbers of metates and manos from a restricted area near the southern foundation of his residence. In one instance a human skeleton had been found beneath a metate. Taking this as a cue, I sank a series of test pits in the vicinity, enlarging these to trenches as the occasion required. On my first arrival upon the grounds, I had been informed of peculiar conditions that appeared to prevent the entry of water into the soil to any great depth. I found little difficulty in at least partially solving the riddle.

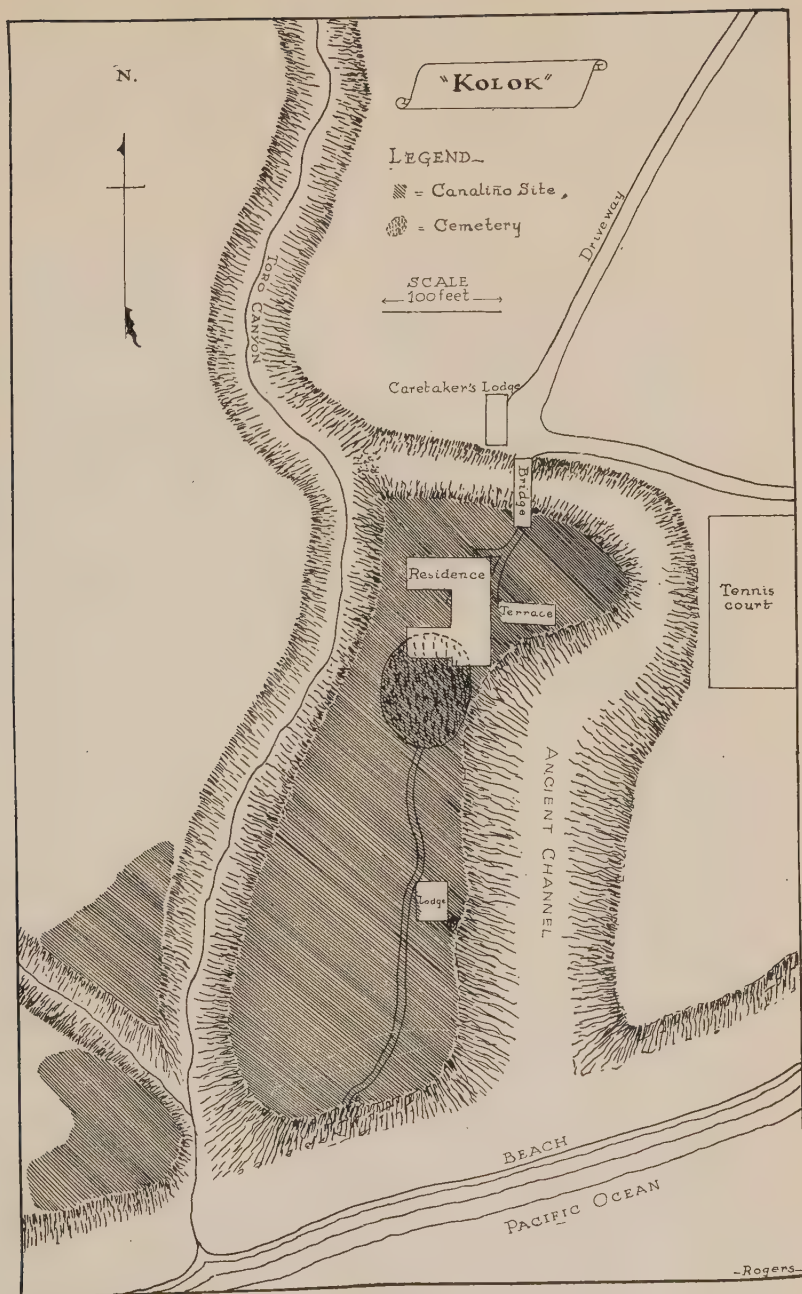
About twenty inches below the surface of this refuse-covered area, lies a sheet of thin, very compact, cement-like substance, through which water percolates but slowly. As a consequence, when the irrigation water reaches this stratum, it seeks escape laterally instead of downward. At first I supposed this formation to be the original surface, but I soon found a human skeleton

imbedded in the layer and closely incorporated with it. In other instances nearby, I found burials below this level, completely sealed by the sheet of impervious cement. The presence of hard calcareous formations in ancient graves of this region is not unusual, but in this case the texture of the material and the method of its deposition were widely divergent from the ordinary.

Several burials were encountered in the course of the exploration, all very fragile, in many cases fragmentary, all in the last stages of disintegration. To even an untrained observer these remains would have revealed their extreme antiquity. In every instance the skeletons were found either entirely beneath the undisturbed surface of the hard, calcareous layer or firmly imbedded in it. These skeletons lay prone, upon the back, and in every case but one the heads pointed to the southwest. There were present above and around each skeleton the remains of rapidly disappearing metates and manos. The metates that were fairly intact were in nearly all instances "killed," by having the bottom punched out. These, however, were in the minority, as fragmentary specimens greatly outnumbered them.

My activities at this location, early in March, 1925, were begun during a stormy period, and the almost incessant rains eventually compelled me to abandon the field. It can hardly be doubted, however, that the small village sites are those of the Oak Grove Dwellers, and that the lower and more important site was occupied at a much later date by the Hunting People. The latter occupancy appears not to have been continuous, probably having been a seasonal visitation; the stratification displayed alternate layers of sea shells and detritus, the shell strata frequently of such density as to indicate almost daily contact with the sea. From this I infer that a coast-dwelling people had occupied the site for a part of each year, bringing their favorite food with them. I found nothing that would indicate that the Canaliño had ever occupied any of these sites.

The thin stratum of impervious cement-like texture that seals in and isolates the frail remainders of an older era, is difficult to account for, although it is probably a natural reformation of the ancient camp-site soil, but of a nature entirely different from any that I have seen elsewhere. Its presence was the only unique feature noted here.



MAP No. 4



## (12) SERENA

The crest of the sea cliff that faces almost directly south of the Fleischmann polo field, eight miles east of Santa Barbara, holds a shallow deposit of camp refuse that probably represents a seasonal camp of the Canaliño.

## (13) "KOLOK"

(Rare instance of the palindrome in Indian nomenclature.)

The early chronicles make frequent mention of the rancheria that clustered about the mouth of Toro Canyon, which enters the sea at a point about six miles east of Santa Barbara. About two hundred yards above the mouth, the ancient channel of the gorge bends to the east and then to the south, while the more recent channel has been cut directly towards the south, conforming to the general direction of the canyon farther up and leaving, between the two mouths, a high delta about six hundred feet long by probably one hundred and fifty feet wide at the widest part. It is the crest of this elevation that we are to consider.

The northern end is occupied by a country house and its out-buildings. The rest of the delta is entirely overgrown by a dense thicket of the Lemonade Berry (*Rhus integrifolia*). (See Plate No. 3.)

To the west of the present mouth of the canyon the character of the soil showed that the region had been used for a time as a camp-site, but there seemed to be nothing to warrant extended explorations there. I confined my exploration to the crest of the delta. The entire area appeared to be covered by a dense blanket of camp refuse to a depth of at least forty inches, this depth being exceeded somewhat as I neared the edge of the sea-cliff. A rustic lodge had been constructed in this part of the estate just previous to my arrival, and an Indian burial had been exposed. My first move was to explore the vicinity of the grave by means of trenching. No other burials were encountered and I am inclined to believe that this skeleton was an isolated burial, such as are not at all unusual among this people.

The superficial examination of the site at the time of my first visit had resulted in the finding of a few fragments of human bones in the flower beds about the residence. I was told that during the construction of the building several skeletons had been

disturbed. I therefore obtained permission to begin trenching within the very courtyard.

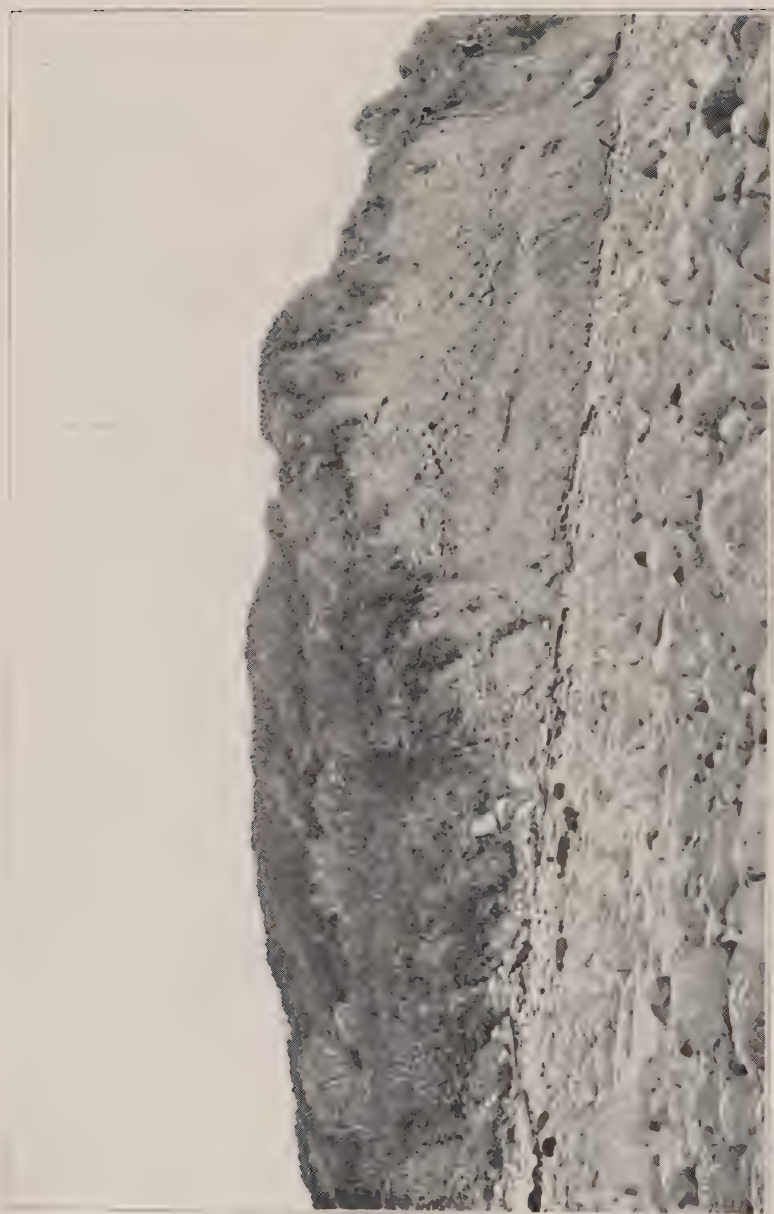
In former years, when the surface of this court was being cleared of the dense growth of shrubbery that originally covered it, numerous skeletons (the owner believes as many as thirty), were exposed. These were all very near the surface, involved in the roots of the shrubs removed. No attempt at deeper exploration was made at the time, but the owner remembers that several of the skeletons appeared to be surrounded by a ring of stone slabs, standing on edge, and that in the majority of cases a platform of boulders covered the grave. Several interesting artifacts were also uncovered at that time. None of these are now available for study, but from the description given, I feel certain that they all belonged to the age of the Canaliño.

I drove two quite extensive trenches within the confines of the court, a short distance to one side of the place where the greatest finds had formerly been made, hoping to broach undisturbed territory.

One of the trenches proved to be barren of results and was doubtless outside the former burial plot. From the second trench I removed five undisturbed skeletons, two being those of children. A remarkable feature in connection with these five skeletons was the studied arrangement of the single tomb in which all five skeletons had been laid. About the skeletons was set a series of twelve flat stone slabs placed on end. These formed a circle four feet in diameter. This bowl-shaped structure had been plastered with clay and afterwards had been subjected to fire; the red burned clay was still in place in the interstices, over the face of the stones and in the bottom of the pit. There was a small amount of charcoal and ash present upon the floor of the pit, apparently the residue from this firing process. The floor was thirty-eight inches below the surface. Between this depth and the twenty-four inch level, and within the confines of the circle of calcined, clay-lined slabs, were the previously mentioned five burials. These were all flexed and were laid closely together, some being superimposed; all lay on the right side, with heads pointing to the northwest. These bodies had apparently all been placed in the grave at nearly the same time, as none of the skeletons showed the disorder that would have resulted from a series of burials.



Present Appearance of Ancient "Kolok," Viewed from the Northeast



Cliff and Rocky Beach Which Form the Southern Boundary of the Site of Ancient "Kolok"

Over the burials had been constructed a closely laid platform of twenty-eight flat stones of varying sizes, the platform conforming in size to the diameter of the circle of grave liners. There is a possibility that this platform was once in the form of a low mound, and that the inevitable settling of this multiple grave had eventually brought it to its position of a subterranean platform. Not a single artifact was found within the confines of this tomb.

Near by was a circular arrangement of flat stones standing upright, very similar to the above described grave liners. This structure was at a slightly higher level; it lacked the superimposed platform of slabs and apparently had never contained a burial. It, too, had been plastered with clay and burned. No residuary ash was found in the bottom, although there was a small slab of whale bone. I believe that this structure was a completed tomb that had never been put to use.

Combining the evidence presented by the stone-lined graves noted by the owner when the ground was first cleared, with that disclosed by our two graves, we must conclude that a system of burial prevailed at Kolok that was unique in this region. A few details are lacking, but enough is revealed to give us a fairly clear idea of this burial custom. A tomb, that from its nature required a great expenditure of time and labor, was constructed, large enough to contain several bodies. After this was filled to its capacity, it was sealed with a platform of flat stones and never again opened. In this respect the burial customs at Kolok differed widely from those of its close neighbors, who regularly removed the bones of those long departed to make room for the more recently deceased, and re-buried the former tenants above. How the tomb found at Kolok could be filled to its capacity without being left open for a time is a matter for speculation. Judging by the evidence of the empty tomb that I unearthed these structures were apparently built before the need for them arose, an example of forethought that is unusual in primitive peoples.

The boundaries of this cemetery were quite definitely determined. It included practically the entire area now covered by the graveled courtyard and probably extended for a distance beneath the residence. Within this area, which is some seventy feet long by sixty feet wide, are still, undoubtedly, many undis-

turbed graves, probably reaching into the hundreds. In these graves are doubtless quantities of interesting artifacts, for there is no evidence that "pirating," to any great extent, has ever been carried on there.

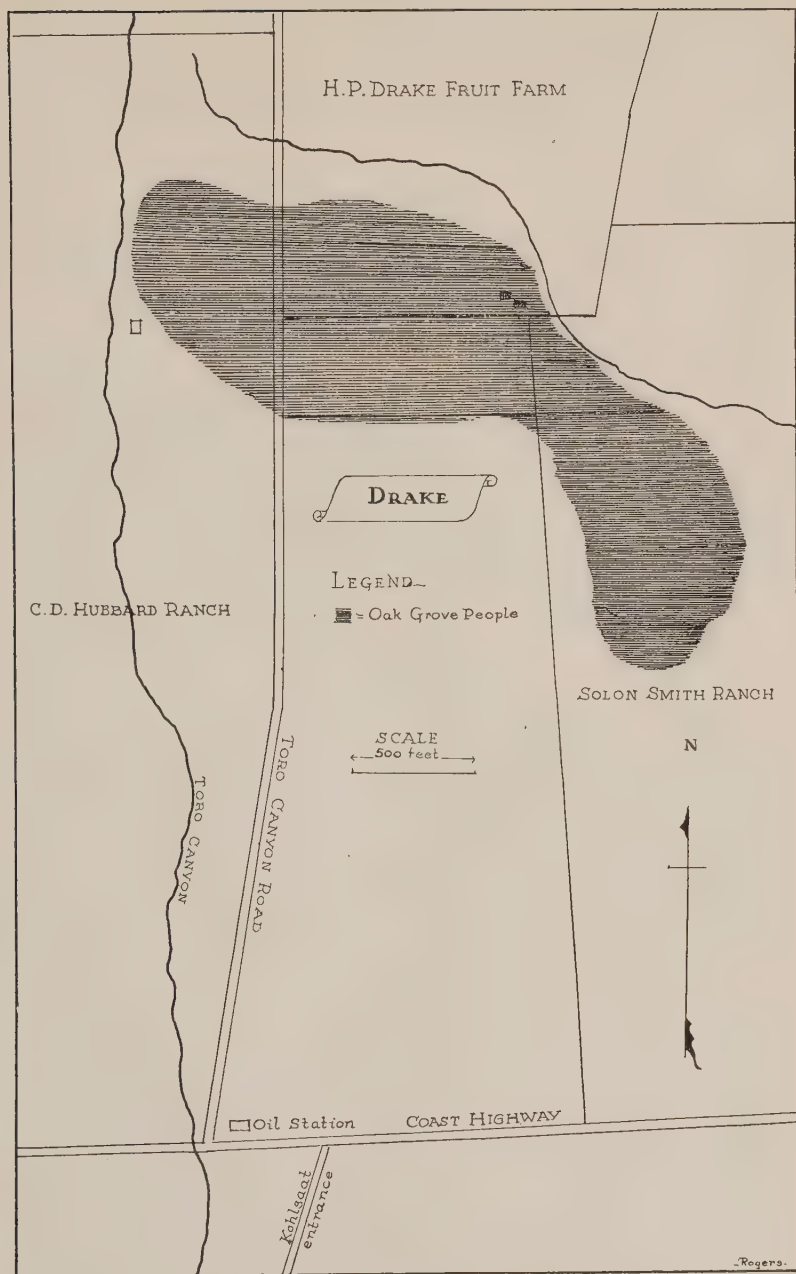
#### (14) DRAKE

One mile east of Summerland and a quarter of a mile north of the Coast Highway, the Toro Canyon Road passes over the crest of a rather prominent knoll. To the east of the road is the H. P. Drake fruit-farm and to the west the C. D. Hubbard holdings. The entire knoll was once the site of a rancheria, the major portion resting on what is now the Drake property, although there was a rather extensive wing that reached to Toro Canyon and another as large that looped over a considerable tract of the Solon Smith ranch to the southeast of the Drake property. I was allowed to make a superficial exploration here but was unable to get permission to excavate; the following summary is therefore merely an outline of the probable conditions at this site.

The location has all the requisites that we have learned to associate with the village sites of the Oak Grove People; it is a high, slightly knoll, well back from the seashore, with a stream of running water on either side, a strong spring of sweet water on the eastern slope of the hill and a great forest of oaks nearby.

I was, therefore, not surprised to learn that of the hundreds of artifacts that have been taken from the surface of the site, very few indicate any considerable advance from the primitive culture of the early Oak Grove People; all are heavy and crude. Mr. Caldwell, former owner of a part of the site, tells of one deep plowing that threw out over one hundred primitive metates. I have counted one hundred and twenty of this same type of utensil in the yards of the neighboring farm houses, none of which were from the Caldwell find. I have picked up over two hundred well worn manos from the surface of the site. Mr. Unkfer, formerly of the Carpenteria Bank, spent a brief time excavating here. He, too, found numbers of metates and manos in this instance beneath the surface, face down, in hard soil, *with no trace of burials present.*

No one has been able to give me any information as to the location of a burial plot within this site, although a few fragments of human bones have from time to time been brought to



MAP No. 5



the surface by cultivation. I have a definite idea as to the probable location of the cemetery, but have never been allowed to test the truth of my surmise. Considering the size of the refuse heap, I should expect to find either a very extensive or else a very congested burial plot.

The surface of the site exhibits evidence of a long and continuous occupation in the remote past, the fragmentary shells being only those of the most durable varieties; even these are in a very chalky condition. On one of my visits I found a laborer completing a deep plowing of the field to the south of the wind-break. In places he tore out blocks of shell refuse that had acquired almost the consistency of stone.

I believe that at a very early date a group of Oak Grove People settled upon this knoll. The settlement became very populous and continued to occupy the same site for ages. When these people disappeared, the place stood vacant until white settlers recognized its advantages. I have no evidence that either the Hunting People or the Canaliño ever occupied the hill as a dwelling place.

#### (15) UNDERHILL

One mile to the north of Ortega Hill, on the north bank of Picay Creek, rise two small symmetrical steep-sided elliptically outlined mounds. The eastern-most of these, oak-wooded and flat-topped, once held upon its crest a settlement of the Oak Grove People. Several artifacts characteristic of that age were found here. The western mound shows every indication of having been greatly modified in form by the hand of man, its contour now being very symmetrical.

#### (16) ORTEGA HILL

Near the crest of a very prominent hill that borders the sea at the western confines of Summerland is a cultivated field. For years the rather shallow plowing has stopped at a given depth, because of numerous boulders that made it impracticable to go deeper. During the spring of 1928, the tenant, Mr. J. J. Twit-chell, let his plow down to the fourteen inch depth and maintained it there, bringing to the surface numbers of huge boulders that in each case proved to be massive, uncouth metates, some of which had oval cavities worked on each side. Seventy-six of

these ungainly mealing stones and about the same number of manos were unearthed.

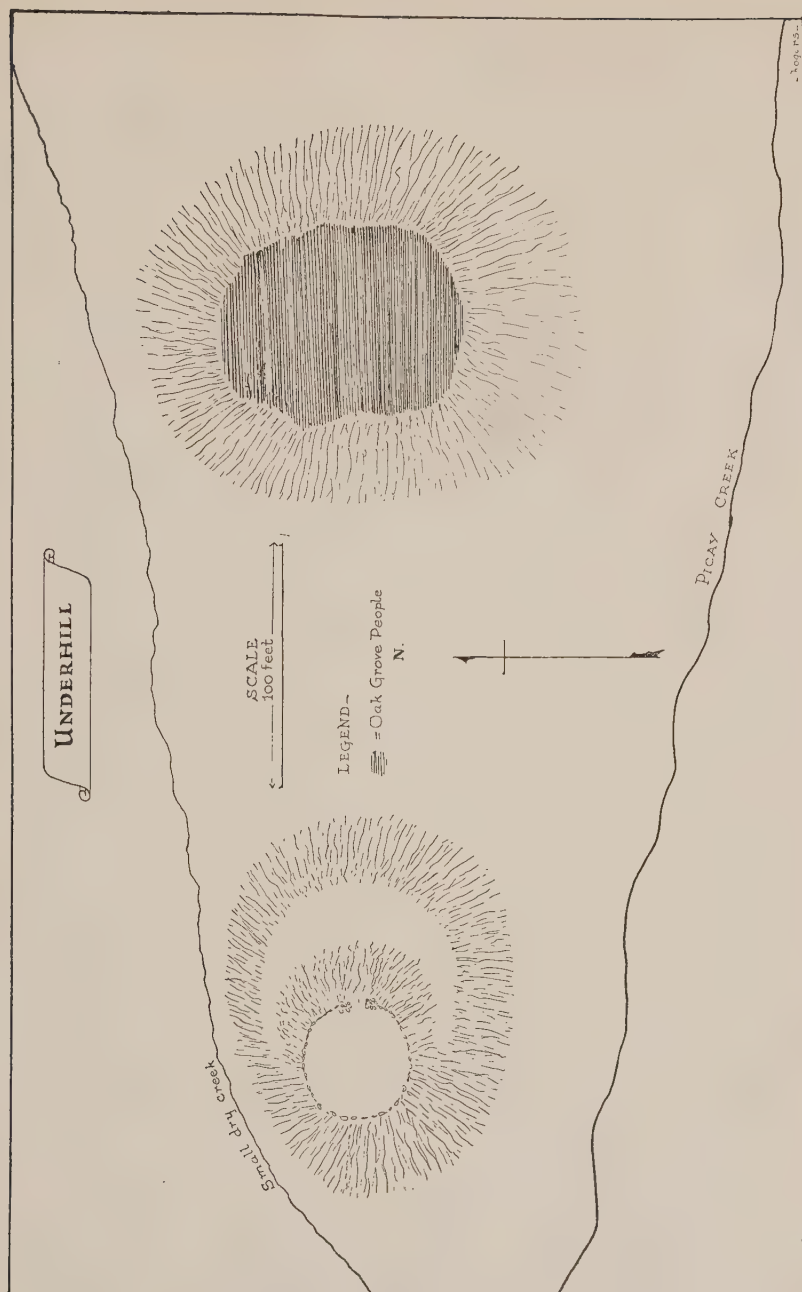
I examined them carefully and found that, in the cavities of some, there still remained fragments of semi-fossilized human bones, imbedded in a stony matrix. Mr. Twitchell said that these utensils were nearly all turned face down and that there was much semi-fossilized material beneath them. He also stated that these artifacts were found in three distinct clusters, and that he made no investigation beneath the fourteen inch level.

I believe that a large settlement of the Oak Grove People occupied the crest of this prominent headland and established at least three cemeteries. The markers have now, in all probability, been nearly all removed, making the location of individual graves in the future a matter of pure conjecture, but it is probable that the most precious relics and the majority of skeletons are still undisturbed.

#### (17) "SHALWAJ"

Near the eastern boundary of Montecito, extending southwest from Ortega Hill, is the flat top of a low promontory that points in a southwesterly direction. The south and southeastern boundaries drop in an almost perpendicular low cliff to the narrow ocean beach about thirty feet below. On the western boundary the bluff is only a little less steep, dropping sharply to a low, flat tract of land, only a few inches above tide water and bordering Picay Creek, a mountain stream that enters the ocean to the southwest. This tract was used in Spanish days as the slaughtering place for thousands of cattle, for the great hide and tallow trade of those times; hence the name "La Matanza" (The Place of Slaughter) that still adheres to the locality.

To the northwest the promontory is heavily wooded by ancient live oaks. A spring seeps from the western bluff. Only a short distance to the north and northeast the great wall of the Santa Ynez mountains appear to isolate this locality from the outside world. Surely a Utopian existence must have been that of the early dweller on the site. The sea at his front and the oak forest at his back supplied him with an abundance of food. The springs at the edge of the village gave him a convenient supply of sweet water. The Matanza flat furnished all the essentials for his building wants, while at night he could enjoy the music of the



MAP No. 6



surf at his very threshold, as he watched the twinkling campfires of the neighboring villages up and down the coast, at Shuku, Mishopshnow, Kolok, Amolomol and Mispu.

During the early summer of 1924 I conducted rather exhaustive investigations at this rancheria site. The location was entirely devoid of improvements or efforts at cultivation, and was covered by a dense, unbroken growth of wild oats reaching to above one's knee, testifying to the richness of the soil. A superficial survey showed that a very pronounced ancient refuse heap followed the edge of the cliff in a northeast and southwest direction for a distance of about three hundred and sixty feet. This heap is, at present, about one hundred feet wide throughout its length, except towards the northeastern limits, where the old bed of the first railroad was cut through in 1887. This operation shaved away a portion of the village site here and probably reduced to a considerable extent the original length of the heap.

The refuse heap was quite thoroughly explored by means of a system of test trenches throughout its length. These trenches were in each instance carried down to the hard, undisturbed subsoil of gravel and clay, which had been the surface at the time of the arrival here of the first man. Upon this stubborn original surface rested a dense mass of the accumulated rubbish of primitive village life, in the form of an elongate, parallel-sided heap of a uniform height of about thirty-six inches. A part of this mound, upon the ocean side, has in all probability been destroyed by the encroaching sea. Upon the opposite, or northwestern side, a section of the heap takes the form of a slightly lower terrace, where the twenty-four inches of debris is of a much finer texture and is evidently of wind-blown origin.

Throughout the entire depth of the higher part of the mound I found a very uniform distribution of refuse. The most noticeable constituent was a sooty-black "greasy" material, associated with many dense beds of ashes. These materials were interspersed with beds of nearly pure shell, or burned shell and ashes combined. Throughout I found cray-fish remains, asphaltum, flint chips and bones of fish and mammals.

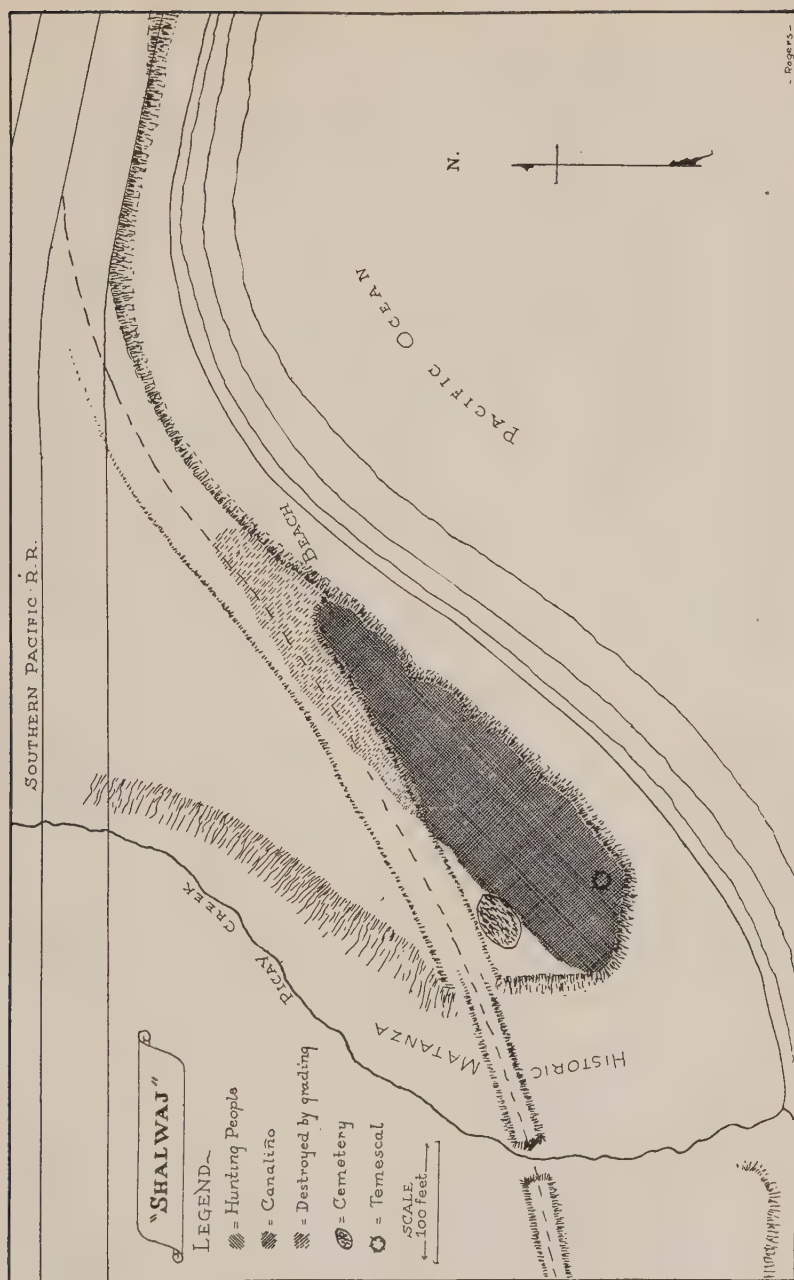
Beach-worn boulders were plentiful, the majority showing the effects of burning and violent fracturing. No human bones were found in the confines of the village site proper, i.e., in the area of ashes and debris. Artifacts, principally fragmentary,

were taken from every trench. Near the southwestern extremity of the promontory, a test trench uncovered evidence of a small circular enclosure about thirteen feet in diameter. This was encircled by rather large beach boulders in a single row. The floor had been cut nearly a foot into the hard sub-soil or original surface. Within the confines of the boulder circle was a dense mass of charred wood, alternating with ashes to a depth of eighteen inches. Above this bed was the formation found in the rest of the heap.

This enclosure was found early in my investigations in this region, and without similar finds to serve as precedents, I considered it an example of a ceremonial enclosure dating from the first advent of the villagers upon the stubborn surface of this point. Since that day I have had the opportunity to examine several such ruins, and in my final summary I have been compelled to modify somewhat this first deduction.

After several days had passed in a thorough exploration of the mound, without finding any burial plot, I went further afield, for I felt sure that it lay nearby. I finally located the cemetery on the bench of land lying to the northwest of the village site proper and on a slightly lower level. As above stated, this terrace has a different soil texture from that of the higher mound. There are, nevertheless, a great number of shell fragments and bones of mammals of various species present. The extreme rarity of fish remains at this site is worthy of note, and bears a relation, I believe, to the almost total absence of fishing paraphernalia among the relics found.

In the section used as a cemetery, the hard sub-soil was reached at a depth of twenty-four inches below the present surface; this was the limit of the depth of the graves, except in a few instances where shallow pockets had been worked into the hard strata for the reception of the burial. The plot was elliptical in outline and about eighty by fifty feet in extent; the longest diameter was parallel with the greatest extent of the refuse heap. Enough of this area was trenched to permit the examination of forty-two burials. The majority of those from the southern end of the plot appeared to be males, while those from the northern part were predominantly female. In every case the heads were pointed in a direction somewhat south of west, or towards the setting sun. There is a slight difference in the orien-



MAP No. 7



tation, just enough to permit us to assume that this was a seasonal variation. As the sun progressed around the horizon with the advance of the year, might not the burials have followed its variations also? One might almost say, "This represents a July burial," or "This woman was buried in November."

A majority of the skeletons were flexed and face down, although a few were found in a prone position, with faces up. In every instance these latter skeletons, which were the ones found in the shallow pockets cut in the hard original surface, appeared to be much older than were the flexed examples. Years later, when careful anthropometrical notations had been compiled upon the crania from the various sites, I found that the prone skeletons differed quite markedly from those of the flexed burials, a difference that might well be termed a racial distinction. In fact I now feel convinced that at Shalwaj we have evidence of a super-imposition of early Canaliño types upon that of the Hunting People. There were no evidences of a hiatus existing between the two, or even of an abrupt change. It is, rather, a chronicle of an older race gradually merging into a later one.

The most noteworthy feature connected with this cemetery was the dearth of artifacts accompanying the burials; a few beads and other ornaments, arrow heads, bone awls, two roughly formed basket mortars, a few pestles and a pair of exquisitely formed, slender steatite tubes about complete the list. This absence of the accustomed burial accessories was for a time very puzzling, but I came to the conclusion subsequently that this particular settlement was occupied chiefly during the transitional period between the Hunting People and the Canaliño, and still adhered strongly to some of the older customs; one of the distinguishing features of Hunting People burials was the almost total absence of personal belongings in the graves.

The condition of the skeletons permitted almost any supposition as to their age. Some were in an almost perfect state of preservation, others had reached various stages of decay. A few of those found in the prone position had nearly reached the point of disintegration.

No weapons were found imbedded in any of the bones unearthed, a striking contrast to those of some localities, and furnishing negative evidence that this particular group was not warlike. On the other hand the presence of a cranium that had

been bludgeoned in life, and an arm that had been broken and had knit again, indicated that private brawls and serious accidents were not unknown among them.

A burial custom, that in later times became very marked, began to make its appearance here. In several instances I found that burials had been removed to make room for more recent ones, the older remains being later placed in the old grave above the new occupant.

No trace of a ceremonial floor or of a council hall was found. It may be that these essential adjuncts of village life once occupied the place that was entirely graded away by the early railroad. By tracing the locations of the early hearths, I concluded that at least thirty large huts had existed contemporaneously here, giving an approximate population of around five hundred souls.

Not one object of white manufacture was found. We may feel reasonably sure that the place became vacant at a time not much later than the first advent of the whites, or about four hundred years ago. It could not have been much earlier, judging from the high degree of attainment displayed by the two steatite tubes. This conclusion is strengthened by the presence of the typical "temescal" unearthed at the southwestern extremity of the refuse heap. So far as I have been able to determine, the sweat-house and its attendant ritualistic forms reached its zenith only in late Canaliño times, just before the advent of the whites.

Taking the combined evidence of the mass of the refuse heap and its stratification, the very evident long lapse of time shown in the disintegration of the skeletons, and the still more pertinent fact of the slow merger of a crude culture into one of more refinement, I believe that this site was occupied continuously for no less than five or six centuries.

Granting this length of occupation and that it ceased to exist at about the time of the advent of the whites, we may tentatively ascribe the village to the period from the year 900 or 1000 A.D. approximately to the year 1500 A. D.

This site evidently supported a fairly dense population continuously, without marked changes in the racial type for a long period, during which the people rose from a rather primitive condition of life to one showing a considerable degree of culture.

## (19) MIRAMAR

About midway from "Shalwaj" to "Swetete" and west of the Miramar Hotel Grounds, there once existed an extensive Indian settlement which began at the edge of the sea cliff and extended back for about forty rods. This locality is now so changed and mutilated by modern improvements, that the exact status of the former village can not be determined. However, it appears likely that the settlement was not continuous over the entire area but was concentrated about several nuclei. At least two burial plots have been definitely located within this site, one near the edge of the cliff and the other in a line about due west from All Souls Church. No evidence of other than Canaliño culture was found here.

## (20) SWETETE

The crest of the promontory on which Bellosguardo, the winter residence of the late Senator William Clark, is situated, is one unbroken mass of camp debris, in the midst of which stands the residence, encircled by driveways, the sides of which display enormous masses of refuse left by a former race.

The various divisions of the former village are now difficult to trace, but, in one instance, the record is still fairly intact. The cemetery of the original inhabitants lay to the east of the residential section, and extended beyond the bounds of the Clark estate to well within the area of the present modern cemetery.

In our superficial examination of this site, I found no evidence of any occupancy other than Canaliño, previous to the advent of the white man.

## (21) VIVIAN

Near the extreme eastern limits of the city of Santa Barbara, King Albert Boulevard, just before it unites with Sycamore Canyon Road, cuts through a deposit of ancient camp refuse. The nature and texture of this material at once shows to what period it belongs. It is greatly disintegrated and contains little organic material that can be identified, except the thicker parts of some varieties of massive sea shells. In the grounds of the neighboring residences, many heavy, oval metates and manos have been unearthed. I was allowed to dig in the grounds of

some of the residences, and had little difficulty in determining that the Oak Grove People alone were responsible for this material. The great depth of this concentrated refuse, forty inches in many places, indicates that this people were established here for a very long period of time.

(F) FLORES

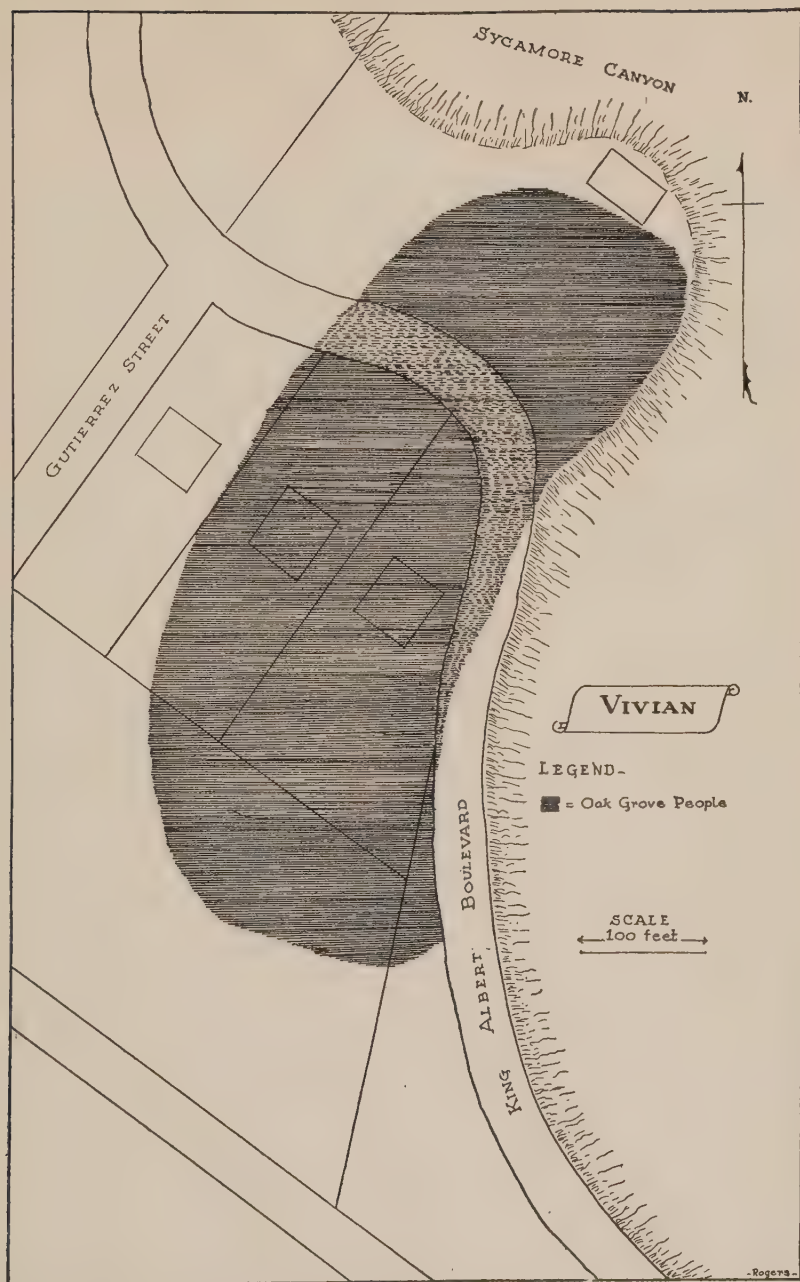
Within the small holdings of Mr. Joseph Flores, about one-third of a mile north of the Vivian site, is a small, highly developed former camp of the Hunting People. This is clustered about a powerful spring, and in the side of the cliff that overhangs it are caves that show long use.

(22) "KASHWA"

On the shoulder of a high ridge that separates Rattlesnake Canyon from Mission Canyon and overlooks the Blaksley Botanic Garden, stand the buildings owned by Mr. H. S. Gane. At the southeastern foot of the upper reaches of this ridge is a well defined terrace, or bench, that is now planted to an avocado orchard. The bounds of this orchard coincide almost exactly with a dense deposit of kitchen midden material of the intensely black, "greasy" nature, characteristic of the Canaliño people. The owner of this estate has in his possession several choice artifacts that have been found, as cultivation progressed. He also pointed out one tree that displaced a well preserved skeleton, when it was set out. This is the approximate location of Henshaw's "Kashwa."

(23) DIXIE

Well within the boundaries of the city of Santa Barbara, immediately west of Mission Creek and between the Coast Highway and Alamar Avenue, is the former Dixie Thompson holding. Here are a series of springs that extend northward almost as far as Mission Canyon. Upon the swells of land bordering these springs are many evidences of former settlements. These include shell refuse, flint chips and cores, manos, metates, basket-mortars, crude pestles, and a few flint weapons of rather crude and massive design. So far as I can learn, no article that may definitely be ascribed to the Canaliño, has ever been found here. From the facts at hand, I conclude that upon this



MAP No. 8



site had resided first a group of Oak Grove People, and later the Hunting People. If ever the Canaliño lived here, he failed to leave any record in the surface debris.

(24) LONE PINE

On the western side of Mission Creek between the Samarkand Hotel and the cluster of auto camps on the Coast Highway, and one-fourth of a mile southeast of the Dixie Thompson site, is a prominent, steep-sided hill upon the crest of which grows a solitary pine. This tree stands in almost the exact center of a small elliptically outlined village site of the ancient Oak Grove People. A few rods to the south of this site are still a few venerable members of the oak forest that in all probability completely clothed the ridge in former times.

Limited excavations here developed the characteristic fossilized kitchen debris, and imbedded in it the manos and metates of the "Ancient Ones."

(25) "TAYNAYAN"

One location that is with some hesitation included in the list of original Indian sites, is the rather widely dispersed bed of camp refuse that covers the estates that adjoin the southwestern boundaries of the grounds of the Santa Barbara Mission and Saint Anthony College. I have not been able to make exhaustive studies here, but have gleaned enough information from occasional trenching to lead me to believe that an extensive Indian settlement existed outside of the Mission compound. This compound, which formerly stood upon the tract of land between Garden Street and the Mission buildings and contained within its walls no fewer than three hundred adobe huts, at times proved inadequate to house the neophytes, and the overflow was quartered outside. There were also frequent visitors from a distance who sought harborage as near the walls as possible.

The accumulations of camp debris from these occupations would soon reach considerable proportions and would reflect the new order of life that produced it. We find, near the surface, copper and iron utensils, glass beads, metates and manos of Mexican derivation, and other grinding tools less easily classified.

Below this variety of materials a stratum is encountered whose origin is less easily explained. Dense beds of typical Canaliño camp-site debris are found in these lower levels extending in some places to the depth of forty inches. None of the objects listed above are to be found in this lower deposit. In their place are beautifully wrought weapons of flint, exquisite stone bowls, and quantities of shell wampum.

I can not look upon this mass of debris without feeling that a great deal of time was consumed in its accumulation, perhaps centuries. This would place its origin at a period long before the arrival of the first white settlers. The artifacts, moreover, show none of the influence of the Spaniards. The locality has a place-name "Taynayan," or "rocky place." All these facts tend to prove the presence, long before the arrival of the Mission fathers, of an extensive Indian village near the future site of the Santa Barbara Mission. It is strange, in view of the above evidence, that this supposed village is not mentioned in the early church chronicles. At present the most pronounced exposure of the debris heaps of "Taynayan" is found on the grounds of Miss Sophie Baylor, 2227 Garden Street.

(26) "SIUHTUN"

A tract of the city of Santa Barbara that is now almost completely covered by modern improvements was once the site for a long period of a considerable sized Indian village. This plot extends almost due north from about one hundred feet south of the intersection of De la Guerra Street and Estado. It is an area of paved streets and prominent business blocks, and shows, of course, no surface indications of the presence here of former inhabitants.

Dr. Kroeber's chart of the sites of this region locates "Siuh-tun" approximately in this vicinity. His chart is based upon Henshaw's investigations made in the early seventies of the last century, when stretches of the original surface were yet available for inspection. I was naturally eager to secure any data that would corroborate Henshaw's statements.

In the course of improvements in the basement of the Parma Grocery Store, a flow of fresh water was encountered that caused much trouble before it was finally choked off. From the resultant mud, I secured several Indian relics. Old residents





Foundation Trenches for Proposed Ambassador Dance Pavillion, within the Highest Developed  
Portion of the Site of Ancient "Amolomol"

remembered that before the advent of buildings here, an old "Indian spring" had produced a marshy place of considerable extent in this vicinity.

From that time on, for nearly four years, I kept track of any considerable trenching that was carried on in this region. From the study of soils from sewers, watermain trenches and foundation excavations, I believe that I have approximately determined the boundaries of this former village. It was of ellipsoidal form, the longest diameter extending almost due north and south for eight hundred feet. The southern boundary of the site is now marked by the south wall of the Central Building on the corner of De la Guerra Street and Estado. The site was about two hundred feet wide. A vast accumulation of debris over this entire area indicates that it was occupied for a long period.

It is strange that little or no mention of this village is made in the early chronicles, especially when we consider that its boundaries were within one hundred yards of the Presidio walls. The settlements of Burton Mound and at the foot of Chapala Street are mentioned, but we are given only rare and vague hints of a more closely adjacent village. Is it possible that "Siuh tun" had nearly disappeared before the founding of the Presidio?

#### (27) AMOLOMOL

Closely adjacent to the settlement that in times past capped the slight eminence known as Burton Mound, is another village site, which, if its complete history could be known, would probably eclipse in interest the higher location. On each side of Chapala Street, where it intersects West Cabrillo Boulevard, may be traced the faint evidences of a former Indian village of considerable extent. Aged residents have memories of the physical conditions that formerly prevailed here, which the present inhabitants have difficulty in imagining. Several weeks of excavating in the vicinity tended, however, to verify to a large extent all that has been recounted by these old inhabitants.

In the old days, a small cove had indented the shore line here, forming an ideal small-boat landing. The narrow beach at that time reached across Chapala Street, at a point some forty-five feet northwest of the Boulevard, or nearly one hun-

dred and sixty feet inland from its present boundaries. From the present line of Chapala Street, the beach was deflected sharply to the south to about its present boundary, while to the east of this street it ran a little north of east.

Massed in crescent form about this cove was a dense accumulation of kitchen midden which reached its greatest width and height within the present confines of the Ambassador tract. This pronounced rise, which has long since been reduced to the level of the surrounding flat, is well remembered by many, and all agree that the former location of its crest was near the present division line of Lots 15 and 16, not far from the southeastern boundary of the tract. Upon this slight eminence there stood for many years a rambling building for the storage of furs, and wool from the island clip. At this time, a short commercial wharf extended from the present eastern side of Chapala Street directly across the beach and out to sea. At the land terminus of this wharf was a capacious warehouse and further to the north were the cabins of the fisherfolk; these were flanked by a small lumber yard. Many of these landmarks disappeared as the years passed, and a throng of Chinese fishermen took possession of the premises and utilized the neighboring flats as fish-drying conveniences. This condition too eventually came to an end. A small bath house was erected upon the sands of the beach, and a silversmith plied his craft of reducing crude silver to beautiful filigree within the cavernous depths of the former wharf-house. The wharf, long in disuse, was being gradually eliminated by the elements.

Another lapse of time and this scene, too, changed. A wide boulevard was built directly from the foot of State Street to the present site of El Banos del Mar. This improvement eliminated a major portion of the great kitchen midden that crossed a part of the right-of-way, the debris being used to fill in the small cove that also crossed the same line. Of all the old landmarks, only the wharf-house now remained, a little to the landward side of the new drive. This dilapidated, cavernous shell stood for a few years more, an eyesore and a menace to the community and then it, too, vanished.

At the close of our extensive development of the remains upon Burton Mound in 1923, for the Museum of the American Indian, Mr. Harrington and I devoted a few days to this site, under



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directions from the same institution. At that time, the only buildings in the vicinity were a cluster of recently erected, temporary studios. These stood about one hundred and fifty feet to the north of the boulevard and on the east side of Chapala Street, but have since been removed. The remainder of the tract on this side of the street was a low, level area, covered by a dense mass of dried vegetation. We began operations in this rather unpromising field about half way between the studios and the boulevard, near the eastern boundary of Chapala Street. Our excavations covered an area of about sixteen hundred square feet; this entire quadrangle was carried down to a uniform depth of about forty inches, where a heavy flow of water stopped us at every point. Efforts were made to bail this torrent but to no avail, nor did a powerful pump produce more than a slight lowering of the flow.

The cause of this high, permanent water-table is hard to determine, for we were still several feet above high tide. We could only suppose that seepage from the springy hillside above, seeking an outlet to the sea, had encountered the sea-wall and that the pent-up water had backed to our field of labor. We were very sure that in prehistoric times this water level was not maintained, for down to and much below it we found a continuous succession of layers of camp refuse. Standing in this subterranean stream, we in places drove the spade down to the sixty-six inch level below the present surface and here disclosed almost pure ashes with their content of burned shells and bones, little different from a large part of the depth that lay above the water level. We found immense quantities of food refuse, in which bones of seal, porpoise and whale predominated, along with great quantities of fish bones and scales. Shells were in evidence, although in much smaller quantity than is usual at these sites.

Of chief interest were the vast, almost pure beds of ashes encountered at many levels, as though, at different periods, immense bonfires had been maintained continuously for many days, then abandoned for a time till the camp litter covered them completely and again kindled to burn for days. These great fires were too extensive to have existed within the walls of the "jacales." May they perchance have served as beacons for the guidance of boatmen at night? Or did they serve as night

lures for certain types of marine animals required by the villagers as food?

At frequent intervals, we came upon camp debris arranged in concentric circles, a great ash bed in the center. About this were burned bones, shells and fragments of stone utensils. Still outside of this material was a zone of finely broken debris containing a few small artifacts. This we decided represented a former hut site. One had a thin bed of ashes, with charred material superimposed and burned human bones beneath. This seemed at least partial evidence that a hut had here once been destroyed by fire and that a human body had been incinerated. Whether this represents an ancient tragedy of a sleeper caught in the flames of his burning dwelling, or an arbitrary disposal of a plague stricken compound and its deceased occupant, or simply the burial ceremony of a visitor from Shoshone-land, where incineration was a regularly established part of each burial, each reader can equally well decide for himself.

Other interesting items that came to light were thin, continuous sheets of clay and gravel at the twenty-nine and thirty-six inch levels. Directly beneath one or the other of these detritus strata lay practically all of the larger, perfect utensils which we found. Far back in the history of the settlement, after a long period of undisturbed residence here, and perhaps in the dead of night, a great wall of sediment-laden water had, apparently, suddenly engulfed the low lying village clustered about the little cove. The frail huts had probably disappeared at the first onrush of water, and one wonders as to the fate of inhabitants, surrounded as they were by low marsh land, and their one haven of refuge swept by such a torrent. It is certain that little effort was made afterwards to recover personal property, for we find their most cherished belongings still weighted with the mud of that fearful visitation.

After a lapse of time, another settlement had been established upon the same site and the community life proceeded much as before. Again we find the great ash beds and also the concentric circles of debris indicating hut-sites. In the course of this renewal of village life, seven inches of debris had been built up above the gravel bed left by the great catastrophe.

Again we have the ominous strata of clay and gravel covering everything and the same attendant phenomena of engulfed

household utensils. Perhaps the same fearful perils of life and limb accompanied its advent. This mark of desolation was again obliterated by a dense settlement and never again swept by devastating floods. It does not appear reasonable to suppose that no freshet of the same intensity has appeared in the centuries that have elapsed since the last tell-tale mark was left at Amolomol. It is more likely that the constantly increasing height of the camp site, due to the accumulation of refuse, at last carried it above the danger of floods.

It is also well, in this connection, to call attention to the fact that the southwestern extremity of this site, a portion that was not open to our inspection until a much later date, gives evidence that it was not entirely overwhelmed by either flood. It had in all probability built itself above the danger line previous to the advent of the first visitation, a fact which would mark it as the oldest portion of the village.

In the very heart of the area examined in this season's work were found six burials, five of adults and one of a child. These all lay in the conventional posture, flexed, with faces down and pointing to the southeast, i. e., towards the ocean and the rising sun. Each of these burials had been made later than the last flood, having been deposited below the upper stratum of detritus and directly upon the lower stratum of the same. There were no accompaniments with any of these skeletons.

This preliminary excavation proved very interesting, laying bare as it did a splendid exposure of important portions of a long occupied town-site, but in the way of cabinet specimens it was somewhat disappointing. A few very striking objects were, however, secured. Among these was a very symmetrical, thin-walled, sandstone bowl, fifteen inches in diameter by nine inches high, the circular, flat bottom being six inches in diameter; it was of perfect truncate-conical contour and compared favorably with any secured at Burton Mound.

My next investigation of this place was when, in the spring of 1924, under the auspices of the Santa Barbara Museum, I devoted a few days to an expansion of the trenches already described. The results differed only in minor details from those of the previous exploration. No burials were disclosed during this latter effort, but other conditions were practically the same. From the lowest depths attainable were taken several mortars

showing a distinct variation from those encountered at higher levels. Flat stones had been used upon whose upper surface some woven, circular contrivance had been cemented with asphaltum, apparently to act as a container for the grist. This container had, in every instance, entirely disappeared, but the asphalt ring still adhered to the stone and contained the imprint of the woven fabric that it had once held. This was a marked departure from the conventional mortar to which we had become accustomed, and is, I believe, an earlier type. A few flint weapons, taken at the lower levels, show a general resemblance to those from the upper strata, but appear to average much larger in size; they bear little evidence of the refinement of finish seen in later products.

At this time, only a few days could be devoted to this site, but a new avenue of investigation was being opened. The development of the Ambassador sub-division required the readjustment of the sewer system, and in September, 1924, the city extended a large lateral along the landward side of Cabrillo Boulevard west from Chapala Street. As this trench led through what was reputed to be the densest part of Amolomol, one can easily imagine how anxiously I watched the turning of each spadeful of earth. The results, although far from startling, nevertheless served to verify the several items that had up to that time rested wholly upon tradition or assumption.

The trench was sunk to a uniform depth of six feet, stopping at what I judged to be the original surface, although a strong flow of water, that persisted in spite of the use of large centrifugal pumps, prevented my arriving at absolute certainty on this point. From the center of Chapala Street nearly to the western line of Lot 16, from the surface to the six foot level, only pure beach sand was encountered. This is fairly conclusive proof that we had not so far been inside of the former beach. However, beginning near the western line of Lot 16 and beneath an earlier fill, we came at once to rich kitchen debris which increased rapidly in mass toward the southwest, until it reached the surface for the entire width of Lot 15. From this point on, it gradually dropped away to the west, leaving a clear-cut sectional exposure of a low mound of dense camp-site material, some six feet high at the crest. A small area of this crest had undoubtedly been leveled away, so that we may safely assume

that the center of the mound had contained not less than seven feet in depth of artificial material at the center and probably more.

The material of this mound formed a striking contrast to the yellowish-brown clay in which it was buried. The last trace of camp-site material found towards the west in this trench was at the very bottom, where it crossed the dividing line between Lots 12 and 13. Having a fair knowledge of the general direction of the western boundary, which was approximately north and south, we may easily visualize the original site as extending fifty or sixty feet farther to the southwest, in the section now covered by the West Boulevard pavement.

At the very base of the refuse at its deepest part, near the southern boundary of Lot 15, the trenchers found four skeletons; three were of adults and one that of a young child. The major portions of these skeletons were at once appropriated by the laborers, although I saw enough of them to note the similarity to others that had been found in the vicinity. No care was used in removing these remains, hence little could be learned of the conditions surrounding them. Several artifacts that were found in the immediate vicinity of the skeletons may, I believe, be safely considered as belonging to these burials. Among these objects were a large abalone fishhook, a short-handled, staurotide ladle, several pestles and some flint weapons. These objects were looked upon by the Mexican laborers as the personal belongings of the finders, and it was with difficulty that I could obtain permission to study them. There were doubtless several that were secreted before I could examine them. No trace of grave-linings or markers could be found.

A few more or less imperfect mortars were also taken and these I was permitted to retain. They were of the two distinct types noted in other parts of this village, the common form with a deep round cavity in a heavy, rounded boulder, and the flat form with a shallow cavity surrounded by a ring of asphaltum that had supported a fabricated hopper. Owing to a complete lack of authentic data as to the depths at which these utensils were found, it is impossible to say positively whether one type preceded the other in the history of the village, as seemed to be the case at other points where careful examination was possible.

Throughout the length of this trench where it touched the inky-black camp midden, there were many fragmentary stone utensils, indicating a long continued residence here. It is also significant that for a distance of probably fifty feet there was no evidence of the two strata of detritus which were found in every other part of the site and pointed to terrific devastation. It might be argued from the absence of these strata, that at the time of the floods no settlement existed at this particular spot. I am more inclined to believe that this small portion of the village had risen upon its own refuse until it was above the flood peril.

Another fortunate chance permitted still other investigations; Chapala Street was to be repaved. Realizing that when this had been once accomplished, its secrets would be forever buried beneath the concrete slabs, I obtained from the city authorities permission to explore it in advance. By following the city's trenching operations and by thoroughly excavating the larger part of the remaining undisturbed soil that lay between the two curbs, I was enabled to verify several previous hypotheses regarding boundaries, depths, inundations, etc. The village here had been almost exactly one hundred feet wide. Its southern boundary had rested near the angle of the little cove and had been marked by a sloping beach. On the northern side, the village had ended abruptly at the edge of a deep tule-grown estero. From this side it had been subjected to two severe freshets that in all probability proved very destructive. Upon this side, too, at a depth of thirty-six inches, I came upon the first stratum of fossilized kitchen midden uncovered at this site. This lay immediately beneath, and conformable to, the lower stratum of detritus. The position of these two strata, in the order in which we find them beneath Chapala Street, perhaps indicates that the first inundation marks the time of the change from the older and perhaps more primitive inhabitants to those of a later and more advanced era.

Numerous artifacts were found during this period of excavation, those of the upper strata giving the general impression of being more refined in finish than those in the lower levels. One heavy, leaf-shaped arrowhead, or knife, from the forty-inch level was heavily coated with the calcareous deposit or fossilized kitchen midden which we have described above.

The results of this rather comprehensive exploration of a zone forty feet wide extending entirely across the ancient site and to a distance beyond on either side, were supplemented by developments nearby, when trenches were dug for lateral service lines in the Ambassador tract. I was now able to trace with exactitude in several places the former limits of the village, and to determine positively that it had been isolated from the nearby village upon Burton Mound by a practically impassable tule morass, at least two hundred feet in width.

At this stage my investigations came to a temporary halt from lack of opportunities to explore the remaining sections. Not until May, 1927, was I again able to excavate in this interesting site. A dance hall was to be erected upon Lots 15 and half of 14 in the Ambassador tract. For several days I haunted the vicinity, which lies in the very heart of the former camp site, searching diligently for any item that might be disclosed in the footing-trenches. These trenches were numerous and opened up a wide expanse of the upper soil, but unfortunately they were not of a depth to make the investigation of great value, only reaching to two feet below the surface. Enough was, however, disclosed to verify to a large extent previous estimates of the bounds and depth of the site. If more corroboration were needed, it might be obtained from the fact that, even at the shallow depth of two feet, a burial was unearthed near the southern end of the eastern line of Lot 15, closely adjacent to the place where the four burials were found by the workmen, when the sewer was laid many months before. This discovery enables us to mark almost exactly the location of the former cemetery.

I fear that the study of Amolomol from its material remains has now been forever brought to a close. A considerable portion of the site is sealed beneath the pavement of the West Boulevard, and modern improvements cover no small portion of the remainder. Only one small section suggests itself as still offering rich opportunities, viz., Lot 17 in the Ambassador tract, but an opportunity to investigate this limited area is not at all likely to occur. However, by piecing together fragments of information obtained by persistent gleaning during a term of years, we may gain a fairly clear picture of the teeming little settlement that once occupied our beautiful water front.

"Amolomol" is one of the rare instances in this region where uncertainty has been in the main eliminated. Not only is there agreement as to its name, but its exact location is repeatedly given by the early chroniclers. There is, however, one point in this connection which the early Padres could probably have elucidated. I refer to the true meaning of the double-syllabled name of the village. The double-syllabled word "Mol-Mol" in the Canaliño tongue may be freely interpreted as meaning "Very, very, ancient." This name, applied to a refuse heap that manifestly had its beginnings in the misty past, would cast a glamor of romance over the spot,—*"The Ancient City,"* as distinguished from others surrounding it, none of which could be considered as recent. Unfortunately in the historic name of our village the additional vowels, possibly signs of negation, may, and doubtless do give the complete word an entirely different meaning. The significance of the well-known name seems destined forever to remain hidden in obscurity.

Despite the clarity in the records bearing upon the location of the village, the passing years and the changes wrought by private and public owners in the natural contours had nearly eliminated the site itself from observation by the time of our advent upon the scene. A small protected cove, bordered by a sandy beach, had originally indented the shore here, offering an ideal landing place for small boats, in marked contrast to the rough, boulder-strewn shores to the west. Closely set about the shores of this cove had lain the Indian village under discussion, resting upon a low-lying, narrow tongue of land that separated the marshy estero from the sea. The limited area of this ribbon of land had arbitrarily set the bounds of the village, which averaged little more than one hundred feet in width; the greatest width was at the point now marked as Lot 16, Ambassador tract, where it reached one hundred and forty-five feet.

The western boundary is well established; it extended almost due south in a straight line from the south corner of Lot 19 to the sea wall directly in front of Lot 11 in the Ambassador tract. The eastern limits are less well defined, being well to the east in the Eaton holdings, but the entire length of the settlement was probably not far from six hundred feet. Near the western end of this site, the long and continuous occupancy had not only produced the widest portion of the village but had

also built a much deeper accumulation of debris. A well defined mound here was remembered by the older inhabitants, before grading operations reduced the surrounding territory to a uniform level. In this mound and near the ancient beach, lay the chief cemetery. I, however, located a small burial plot much farther to the east in the present Eaton holdings.

Throughout the upper reaches of all this deposit were found artifacts and other remains of a high artistic standard, which closely approximated those found upon Burton Mound and other similar village sites; and the presence of hut circles gave evidence of similar housing arrangements. In fact the similarity between the remains of these two closely adjacent groups is so pronounced that they must have been kindred, although the intervening, almost impassable swamp would appear to have necessarily separated them into two distinct organizations.

This village upon the low flat was subjected to more of the perils of life than was its fellow upon the knoll, for on at least two widely separate occasions it was swept by devastating floods that practically destroyed it.

In the lower levels of this accumulation of the ages, we find evidences of other modes of life. The utensils lack the charming finish noted in those from a higher level, and in a few cases, notably in the mill stones, there is a change of type. The food refuse also denotes a change of appetite, or else in the source of supply, for instead of the masses of molluscan and smaller fish remains found in the upper levels, we find in the lower levels the bones of land mammals predominating, along with sword-fish, shark, seal, porpoise and whale.

I believe that these early settlers of Amolomol were a people endowed with different tastes from those who followed them and with a skill and courage that permitted them to gratify these tastes. Their most striking remains are probably the immense beds of pure ashes of great depth that carpet almost the entire area of the village, at the base of the midden, with a dense mass of eighteen inches or over in depth, as though perpetual fires of great extent had been maintained along the beach for a long period. Such fires might have served either as a guiding beacon for night navigation or as a lure for sea creatures, but there may have been other equally plausible reasons for their presence.

## CHAPTER III

### DESCRIPTION OF SITES (Continued)

#### (28) BURTON MOUND

**P**ROBABLY no prehistoric site within the area known as the Santa Barbara region, has aroused and retained the public interest as much as that which lies beneath the grassy crest and slopes of Burton Mound. Here, from early days until it became a residential sub-division, citizens of every class came to hold their festivities upon fête days.

Upon the crest of this knoll, from time immemorial, had stood "The Adobe," which, with the single exception of "Casa De la Guerra," was probably the most noted of the early residences of the city. Here for years, with his good wife Sinferosa Sanchez, dwelt Captain George Nidever who embodied in his personal experiences the romance of the old West during the period just preceding its transfer from the rule of the Latin to that of the Anglo-Saxon race.

After the passing of Nidever, "The Adobe" became the home of Don Louis Burton, another noted frontiersman, one of a party of sixteen hardy souls who in the early thirties had crossed the plains to settle finally in Santa Barbara. In this building, in 1879, Burton died, and the knoll has since borne his name.

In 1923, the Museum of the American Indian, of New York City, secured permission from the owners to explore the site for evidences of the prehistoric village that, according to a persistent tradition, had once existed there. The exact location of the village could only be conjectured. Presumably it had rested on the crest of the small, rounded knoll that rises near the center of the otherwise flat, low-lying grounds, but even the former crest of the knoll was difficult to locate. Its most pronounced angles had been greatly reduced by plow and scraper, the steeper declivities had been modified, and carloads of earth had been dumped in the many sunken, marshy places.

Under these conditions the preliminary work of the archæologists was largely an effort to relocate a site of whose existence they had no doubt, but which in the course of time had vanished from sight, leaving only dim recollections in the memories of the older inhabitants who as youths had collected relics from the place.

Having been in charge of this field work, which began in the spring of 1923 and continued uninterruptedly until nearly the close of this year, I can testify to the weeks of toil that were spent in vainly trenching through the ruins of the Ambassador Hotel and its vicinity, in an effort to obtain some clew which might direct our course.

Our persistence was finally rewarded. On raising a slab of the great central walk that faced the foot of the main staircase of the former hotel, we came at once upon the evidences of former occupancy that we had so long sought. Best of all, these evidences were, to a large extent, practically undisturbed by modern man. From this time on, our course was clear. The wide, central walk, that had led from the main entrance to the West Boulevard, was section by section removed, for a distance of one hundred and twenty feet from the main steps. Throughout this entire length, and to a width of forty feet, we were in continuous contact with material that spoke eloquently of the intimate lives of prehistoric and early historic peoples. Our success may be measured by the fact that, in the course of the season, we shipped to New York no less than two tons of material and the skeletal remains of three hundred individuals.

This particular fragment of the former surface of the mound lay practically *in situ*. The fringes had, of course, been disfigured by grading operations, and in places there were evidences that early relic hunting had wrought havoc, but as a whole it was a fine field for exploration. In places, the well-defined debris was of considerable depth, even reaching to seven feet in a limited area near the base of the original natural mound.

Throughout this season's work, we came upon none of the great shell heaps that are usually associated with these former villages. The soil was of the intensely black, "greasy" nature, with a liberal content of finely broken shells, which we afterwards learned to designate as "cemetery soil," in distinction from the coarser debris of the residential sections of the sites.

At that time, in common with other anthropologists, we had not considered the possibility of more than one culture or race of men having ever been represented in this locality.

In nearly every trench cleared, at a depth of about forty inches below the surface, we encountered a hard, calcareous, conglomerate-like stratum. Casual chipping at this rock-like structure disclosed nothing of interest, and as it was particularly stubborn to work, we considered it sub-soil and ceased digging in any particular section as soon as we reached this layer. We then proceeded to the next section and buried this apparently barren stratum beneath the resultant debris.

But at last a day arrived when we found an artifact imbedded in this supposed sub-soil. Our interest was at once aroused, and a deeper excavation through this difficult material disclosed it to be about six inches thick, *and resting upon camp debris*. Most surprising of all, imbedded in this rock and nearly inseparable from it were two human skeletons, each accompanied by an obsidian spear head. These skeletons lay at full length, not flexed as in the upper layers.

At this time there appeared to be no explanation for this puzzling discovery. Knowledge of it, filtering into popular channels, was seized upon by the daily press, where it was expanded into a caricature of the truth, and within a fortnight it had become the target for ridicule, instead of becoming, as it should have been, the subject for immediate and careful study by the most competent authorities.

Many weeks later, a group of scientists from eastern institutions made a careful study of what they doubtless honestly believed to be these particular relics, confining their analysis however almost exclusively to the physical condition and anatomical features of the specimens, with but scant reference to the location in which they were found. Their conclusions missed by a wide margin the definiteness we could wish for. This is not surprising, when we consider certain facts surrounding the inquiry. Months had elapsed since the original discovery, and the skeletons had been so frequently moved that there had been abundant opportunities for confusing their identity. As a result, instead of the two that figured in the original discussion, immediately after the removal of the skeletons from the stony matrix, at the close of the inquiry we find complete

descriptions of *three* craniums, with no explanation for this increase of fifty per cent.

In so far as these particular remains, widely heralded as "Homo Barbarensis," are concerned, I believe that the interest aroused by their discovery has run its course and the incident may be considered closed, but the circumstances surrounding the location and formation in which they were found are still extremely significant. A brief recapitulation will serve to fix our attention on a few salient points.

For many weeks we had been digging among the relics of an extinct people, who had shown every indication of an advanced sense of artistic beauty. We had unearthed perfectly wrought sandstone bowls of large capacity, grooved along the symmetrical rim for the insertion of inlay, great pestles, as true of contour as though turned in a lathe, and striking ollas of steatite, globular in form and narrow-necked, the rolled rims engraved in a cross-hatched design, reminiscent of the basket forms that undoubtedly served as prototypes. Besides the larger artifacts, there were a great number of smaller trinkets, all displaying the same high order of finish and great variety of forms. There were flint weapons and tools that in their dainty perfection rivaled the output of a modern lapidary, bone and shell fishhooks of exquisite symmetry and personal adornments of extraordinary variety of form and material. In the more recent deposits, marked by much less disintegration, we found the sad reminders that this people had come in contact with the white invaders; brass buttons from Spanish uniforms, glass beads from Venice, and all too frequently old-fashioned wine and rum bottles began to appear in the graves. In every burial examined, the skeletons were found flexed in "the embryonic posture," i. e., with arms and legs doubled against the breast, and usually face down. These remains were all in a fair state of preservation and lay in the rich, mellow black soil that reached to a uniform depth of forty inches in all undisturbed parts of this slope of the mound. The Indians of that period had evidently followed much the same line of reasoning that had actuated the archæologists of a later date, for there were no indications that any grave of the time extended below the upper surface of the calcareous stratum described above, which was probably as impervious at that distant time as it is at present.

We were naturally eager to account for the marked difference of the material found in the two strata. The artifacts and skeletons which we finally found in the calcareous "sub-soil" presented a striking contrast to the varied and artistic artifacts and the flexed skeletons of the upper "greasy" strata. Dr. Ralph Arnold very kindly made a careful analysis of samples of the stony substance that had puzzled us, and positively identified it as fossilized kitchen midden. In other words, an ancient shell heap, after long exposure to the elements, had become thoroughly disintegrated and had settled into a homogeneous mass. This had been utilized as a burial place for the two bodies that we had found, but had later, after the lapse of centuries, been converted to an almost stony texture. I have since found similar formations at many locations and have come to look upon them and their contents as infallible signs of great age. Not only does the process of converting a shell heap into a ledge of stone require, in this mild climate, a great lapse of time, but the human remains contained in it show radical differences from those found in soil of more recent formation. The skeletons are much more vestigial, the fragments show a marked tendency towards fossilization, and careful measurements indicate cranial variations. Add to this the fact that there is a decided difference in the type of artifacts found in or below this fossilized midden, and we realize that we have significant evidence of the possibility of differences of culture and race.

As soon as we found the two stone-imbedded burials, we lost no time in sinking the trenches much deeper, the entire depth showing a dense accumulation of camp refuse. We always met, at about the forty inch level, the curious rock formation, which gradually grew less in thickness as we proceeded down the slope, until it was a mere film.

With a view of ascertaining the origin of this knoll, a deep shaft was driven to its base. This extended for its entire distance, after the built-up camp debris had been passed, through a very compact blue clay. Through natural fissures in the clay there ran strong streams of cold, sweet water, the source of the springs for which the place was once famous.

Late in the year our investigations were brought to an untimely close, before we could establish a number of important

points regarding the former village. Its extent was entirely problematical, as was the extent of its cemetery. No information has been secured as to the location of the various divisions, residential, ceremonial, recreational, etc. An unexpected turn of events, however, enabled us later to continue the survey. The Ambassador grounds had changed ownership and archaeological excavations were positively tabooed, but the installation of public utilities, preparatory to throwing the tract upon the market as a residential sub-division, had resulted in the opening of a perfect maze of criss-cross trenches, giving perfect data as to the form, location and boundary of each physical feature of the plot. We had, therefore, very little difficulty in determining the outer bounds of the former settlement where its thinning debris could be traced to the vanishing point along the exposures in the side walls of the trenches. The form and extent of the village was no longer a mystery.

Its various divisions were also determined with a fair degree of exactitude. The cemetery, which had proved of such interest in our previous work here, was now found to reach at least one hundred and sixty feet farther to the south than we had at first decided, and furthermore, two very densely occupied burial plots were found, one upon the northern and the other upon the western slope of the mound.

About a strong spring of sweet water that was unexpectedly uncovered, were many evidences that it had been a center of the village activities. We found there stone vessels and other artifacts, with the functions of some of which we are still unacquainted. Of these latter I will only mention a large, shield-shaped slab of stone, having upon its flat surfaces long, shallow grooves running longitudinally, the result of long usage. Near this spring we also uncovered several whale ribs set on end. No burials could be traced in this vicinity and the inference is that these bones were the remains of some ceremonial structure.

There were many interesting disclosures as the work proceeded, but it is manifestly impossible to record more than a few. At the southwestern side, the old mound, capped by its settlement, had been flanked by an extensive marsh. In the course of reclaiming the grounds, this morass had been buried beneath many carloads of clay, but the new improvements again laid it bare in places. In the midst of this quagmire was found

the headless skeleton of a young woman. It might at first have been taken for that of some unfortunate who had become mired in the slough, but the absence of a head seems to point to some remote and gruesome crime.

In another part of the grounds was found the carefully arranged grave of some notable, containing, among other choice relics, a string of nine large, bone tubes, each completely covered with a beautiful, superimposed design of shell beads set in geometrical patterns in a bed of asphalt.

Toward the close of the trenching above described, there was uncovered, upon the crest of the knoll, a series of three parallel, massive, stone walls, built of large, unwrought, beach boulders. Their significance was not revealed by the limited extent of the exposure, and they were soon after again buried, but I look upon them as almost certainly marking the sites of former ceremonial enclosures, probably a dance platform or a sacred council hall. At one point inside these walls was a dense bed of pure ashes indicative of a sweat house. Immediately outside of this was one of the most densely occupied burial plots found.

Let me summarize briefly the results of the investigations at this site. At the conclusion of our activities, we were able to state positively that at this place for a long period of years, probably extending into centuries, there had existed a settlement of people who, though exhibiting in many ways habits and customs that would classify them as savages of a rather low order, yet gave evidence of attainments in the arts that would place them on a much higher plane, probably on that known as barbarian.

The village site had covered the entire surface of the knoll later to be known as "Burton Mound," and had even spread to the fringes of the marsh that surrounds it. The village had been roughly elliptical in outline. The longest axis, about five hundred and fifty feet in length, had extended northwest and southeast; the shorter measured about four hundred and twenty-five feet. Over this entire area could be traced evidences of long occupancy.

The residential section had been chiefly centered upon the eastern slope of the rise, about the sparkling spring that here found outlet to the wide estero just below. A vast accumulation of kitchen debris was found in this vicinity, and also upon the

northwestern and western slopes of the mound, although in each of the latter regions it was much more restricted in area. A great cemetery extended southwestward from near the crest to well into the marsh. Other burial plots, smaller but highly congested with graves, existed upon the northern and western slopes. Upon the crest of the mound had probably been arranged all of the ceremonial enclosures, essential features of every village of this region. Their location was not positively determined, but the significance of the stone walls that we know existed beneath the soil here may not be ignored.

The debris from the kitchen middens gives positive proof that the Indians obtained, without much effort, a superabundance of food. There were, however, in their lives long periods of the most exacting labor during the creation of their remarkable utensils, the finish of which invariably exceeds the requirements of simple utility. A pride in artistic accomplishment appears to have been a passion with these people. This applies, of course, to the period before they had experienced the blighting contact with the whites. When this fateful period at last is noted, we see it attended, almost immediately, by a complete cessation of the products of Indian arts and crafts. In their place we find as cherished possessions only the tawdry gew-gaws and commonplace containers of liquor for which they exchanged all that had made their lives worth living—happiness, health, freedom and honor.

Not the least important of the results of the investigation was the evidence that the above described people had been preceded by an earlier settlement upon a part of the same site. The earlier inhabitants had occupied a much more restricted area than the last, but probably, judging from the accumulated debris, for a longer period. The upper stratum of this debris had decomposed and reverted to stone before the advent of the latter people, who eventually buried the entire mound under a new blanket of their own refuse.

At the time of the unearthing of these older remains, I had not awakened to the possibility of discovering cultural differences here, hence a part of the value of the discovery was lost. After extended investigations at other sites in this vicinity, I was able to segregate positively three distinct eras in the pre-history of the region. Drawing upon my memory and the sea-

son's field notes, I am now inclined to classify the two ancient burials found in the lower deposit as belonging to the second culture period, rather than to the first. This classification is based upon the three tests of location, condition of the skeleton, and the artifacts present, all of which correspond closely to those of the Hunting People and in no respect resemble those of the Oak Grove People. The much heralded "*Homo Barbarensis*" would now be a most interesting subject for comparison with the abundant material that I have since secured from other sites.

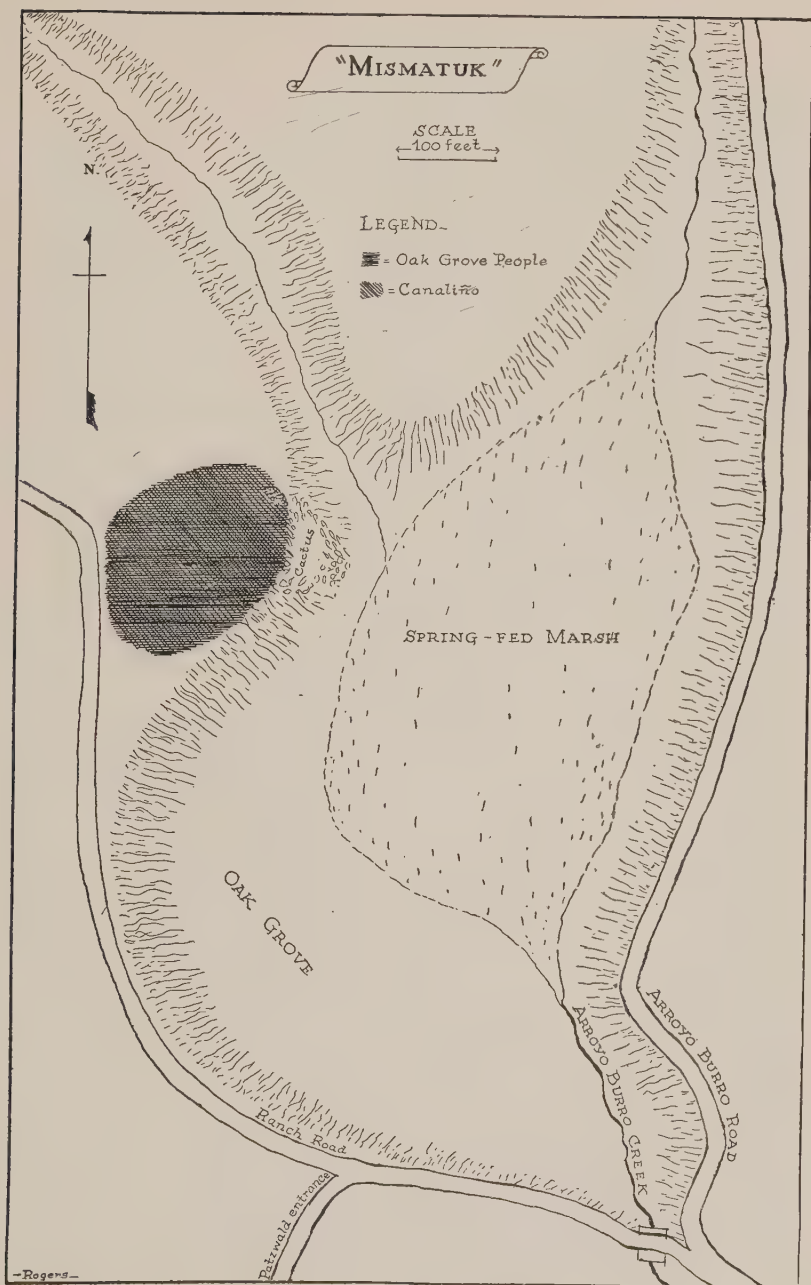
It should perhaps be noted in passing that the actual cemetery of the more ancient site was not located, random burials, only, having been found. Somewhere beneath the surface of this historic knoll rests abundant material to refute or verify the above deductions.

A word, in closing, as to the name of this village. From the early records, hundreds of names of villages, places, and localities have been handed down to us. Unfortunately only a small percentage of these were located definitely enough for us to feel sure of their identity. Moreover, each historian has used an entirely new nomenclature, and often records names that differ so slightly from each other in spelling that they are apparently duplicates. In later years, through long and careful study, ethnologists have compiled a partial list of the names of the former villages that at one time flourished in the territory tributary to the Santa Barbara Channel. Among these authorities are Kroeber, Harrington and Bancroft.

To the village under discussion Harrington ascribes the name of "*Siuhtun*." Kroeber gives it as "*Alpincha*," locating "*Siuhtun*" farther to the north, near the present intersection of State and De la Guerra streets. This latter site was expressly described as "*Yanonalit*" by Bancroft. I fear that a selection of the proper Indian name for any of these moldering sites is, after this lapse of time, impossible.

#### (29) EL BANOS

About as far east of the easternmost site on Castillo Point as the latter is from the larger site, over the tract now occupied by the grounds of El Banos del Mar, was once located, at nearly sea level, a village of undetermined extent. When the present



MAP No. 10



PLATE 6



"Mispai" No. 1, Viewed from the Northwest. The slight eminence at edge of cliff, in line with war-  
ship on the left, is the ruined Spanish redoubt



The Great Butressed Site of Ancient "Misquith" Is Seen Above the Opening of the Trees Above Center of Photograph. A fresh-water marsh is in the foreground

artificial surface is broken at any part of the grounds, camp refuse of considerable depth is disclosed, and when winter storms have denuded the shore of sand, one may still find remnants of the village cemetery beneath the landward end of the pleasure wharf.

(30) (31) "MISPU"

The flat top of the bluff that faces Castle Rock, in the southern extremity of the city, was once occupied by the populous Canaliño village of "Mispu," "The Place of the Hand." Why a hand, or what hand can probably never be determined.

I was unable to obtain permission from the owners to explore this site. Superficial survey showed that a dense bed of camp refuse covered a wide area at the brink of the cliff. At the eastern extremity of this deposit, one can trace the outline of the Spanish redoubt that once guarded the harbor. About three hundred yards to the north of this "Castillo" are the indications of another but less extensive rancheria site on slightly higher ground.

(32) ARROYO BURRO

A tradition has long persisted that an Indian village once existed near the mouth of the Arroyo Burro, an apparently ideal location for a settlement. A great many artifacts have been found upon the surface in this vicinity, and fragments of two Indian crania were laid at my feet by an ambitious young dog, who had watched my explorations with interest and had carried on private investigations of his own. Nevertheless, although I have searched the locality faithfully on many occasions, I have failed absolutely to locate the site.

(33) "MISMATUK"

A small site is situated on the crest of a small rounded knoll which overlooks the western side of the marsh that occupies the floor of Arroyo Burro, about one and one-fourth miles from the sea. This site is about two hundred and ten feet long, northeast and southwest, and one hundred and fifty feet wide. Rather extensive trenching operations developed the fact that thirty inches of artificial soil covered this area, and that a large part of this was laid down by the People of the Oak Groves. The upper six inches of the refuse bore all the characteristics

of the Canaliño, containing articles of a high degree of finish. Below this stratum were found only manos and metates, hammers and flint chips, all bearing marks of great age.

A summary of the sequences disclosed here is as follows: a typical village of the "Ancient Ones" was occupied continuously for a long time; this place appears to have never known the Hunting People; in comparatively late time, the Canaliño maintained some form of small settlement here, possibly a temporary acorn-harvesting camp. There is no evidence of long continued occupancy by the latter people. They were, nevertheless, in evidence here when Portolá paid his first visit to the locality.

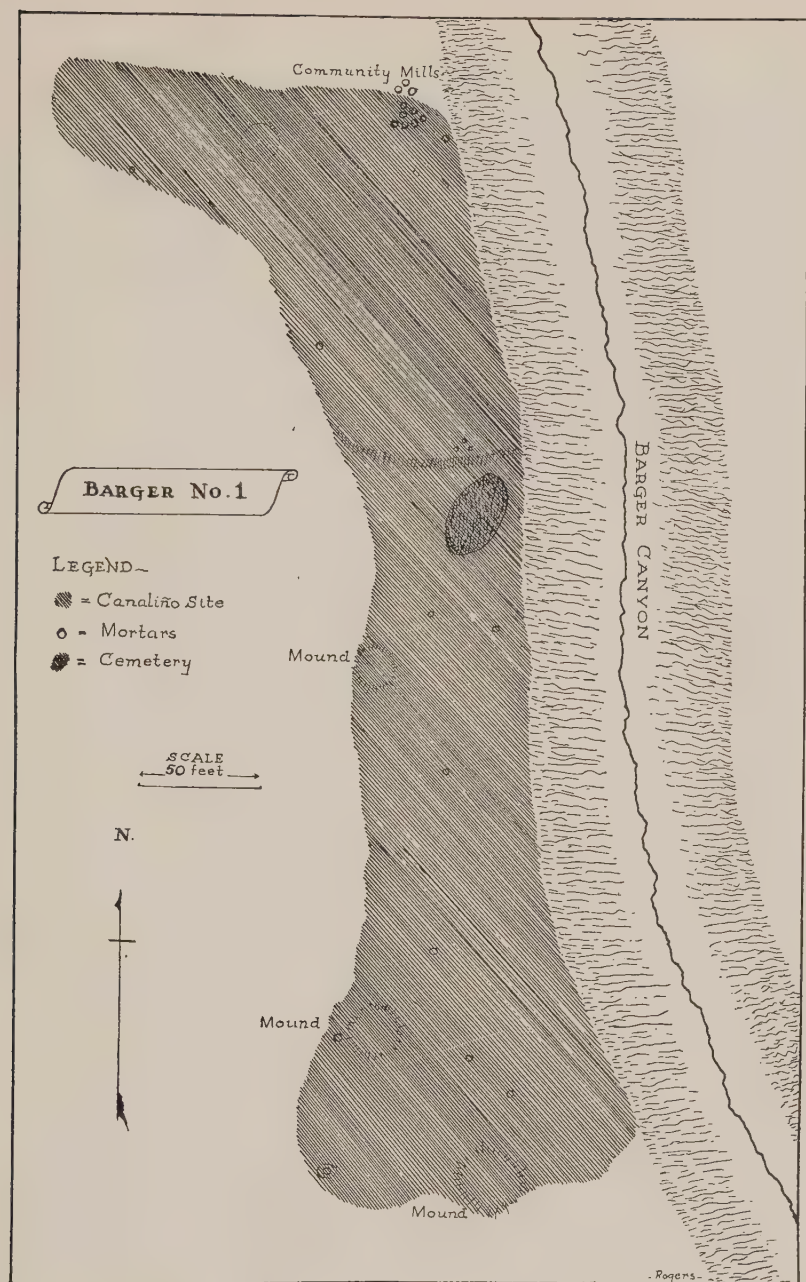
(34) JAMES

Within the western boundaries of Santa Barbara, in the northwestern angle formed by the junction of Hope Avenue with the Coast Highway, and back a short distance from each of these roads, is an inconspicuous knoll. Upon the crest of this gentle rise once rested a village of the Oak Grove People. Many metates and manos have been thrown out by the plow, but no systematic excavation has ever been carried on.

(35) BARGER No. 1

If we enter the pasture land at the head of Hope Avenue, in the western environs of Santa Barbara, we can climb towards the north by easy stages up the crest of a rocky ridge. This ridge is marked by a series of natural terraces, a veritable giants' stairway, leading towards a prominent foothill at the base of La Cumbre mountain. Half way to the crest of this hill, two adjacent terraces attract our attention by a change of texture in the soil.

We find that we have paused upon the western brink of Barger Canyon, a deep gorge with precipitous sides and set with live oak and sycamore trees. The location affords a view of the entire valley, and the ocean is visible through two breaks in the headland. At the base of the bluff bubbles a sweet, cool spring. On the bluff is a long, narrow village site which follows the brink for a distance of four hundred and sixty feet north and south; it averages one hundred feet in width, each extremity exceeding this somewhat. Over the entire surface of the brushy,



MAP No. 11

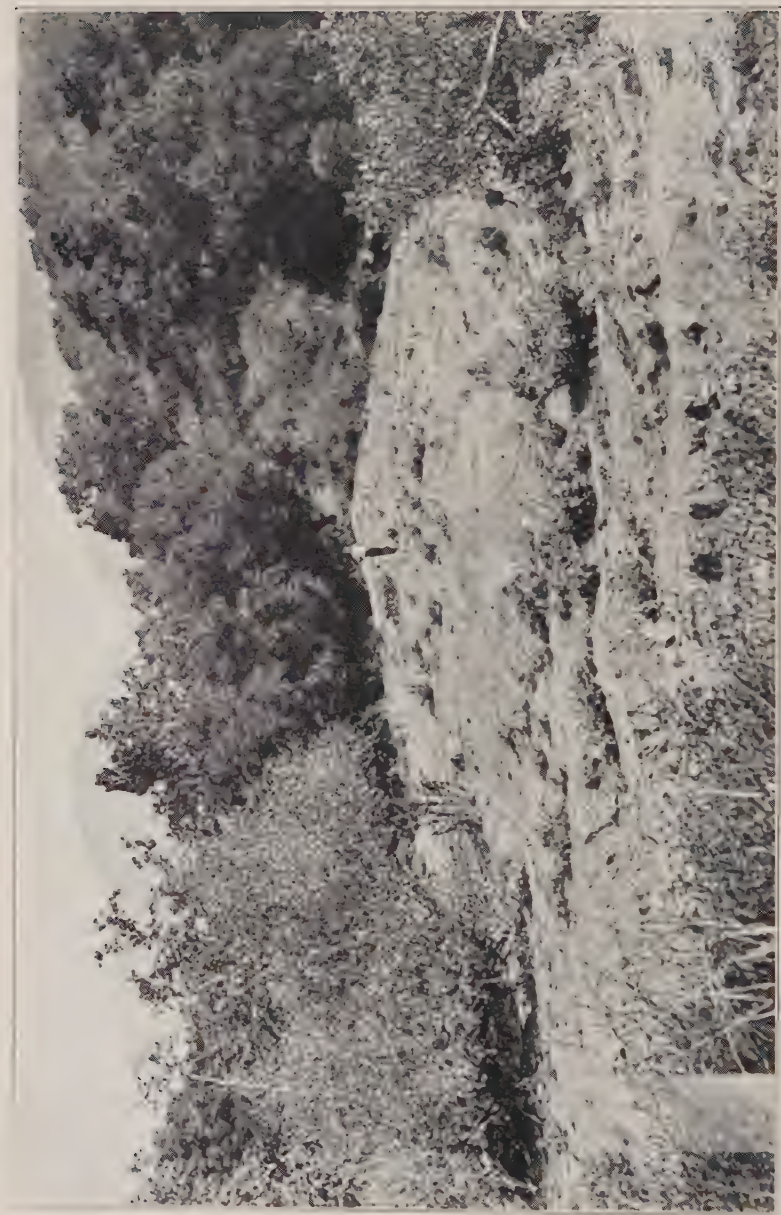


PLATE 8



Barger No. 1, Viewed from the South. The human figure is near the center of the cemetery

PLATE 9



Barger No. 2. Human figure stands near the center of the site

grass-grown terraces we find the sooty soil and shell debris that indicate former residence here of the Indian.

Scattered at random over the site may also be found boulders of varying sizes and forms, brought down by erosion from the hills above. Many of these earth-bound rocks contain deep, circular mortar cavities within their upper surface, either singly or in groups; these are communal mill stones. (See Plate No. ~~22~~<sup>3</sup>.) The most noticeable of these is the cluster of seven closely adjacent mortar cavities at the northern limits of the site. Another remarkable millstone is upon the crest of a huge boulder beyond the bounds of the village to the southwest. This is about five feet above ground, and must have entailed a hard scramble for the miller each time the acorns were ground. At least eight other boulders within the confines of the former village show upon their faces the strange clusters of "cup markings" that are frequently found among the remains of this people. I present diagrams illustrating the arrangement of these figures. They seem to resemble nothing so much as the constellations of the stars.

A superficial feature that at once attracts attention is the presence, at irregular intervals, of pronounced small mounds that rise over a foot above the general level and have a diameter of from ten to thirty feet. Several pieces of broken artifacts are scattered over the surface, and one uncompleted stone bowl rests in the underbrush at the bounds. Several fine artifacts are said to have been taken from this site, exquisitely turned pestles, symmetrical stone bowls and well-made arrowheads. None of these, however, are available for our inspection.

In July, 1926, I was able to conduct a careful survey of the site, assisted by George Weld, Jr. A series of trenches served to throw light on several points. The small circular mounds above mentioned proved in all cases but one to be the places formerly occupied by large oak trees, the accumulations about their bases having produced a pronounced rise. Among the accumulations were many flint chips, and a few uncompleted flint weapons, indicating that the shade of the trees had often served as a work shop.

One of these mounds showed a different origin. Here was found a ruin of a semi-subterranean circular structure, about fourteen feet in diameter, very similar to the temescals so often

unearthed but entirely devoid of the usual encircling boulders and also of the enclosed bed of charcoal and ashes. The exact significance of this mound was further obscured by the fact that generations of burrowing animals had made it their home and had succeeded in destroying it to a large extent.

By trenching, we discovered the cemetery but it proved to have been thoroughly rifled by relic hunters. An almost unbelievable amount of human wreckage was encountered, masses of fragmentary human bones being piled at the bottom of former trenches. Not a few fragments of pestles and sandstone bowls, and steatite ollas were also present.

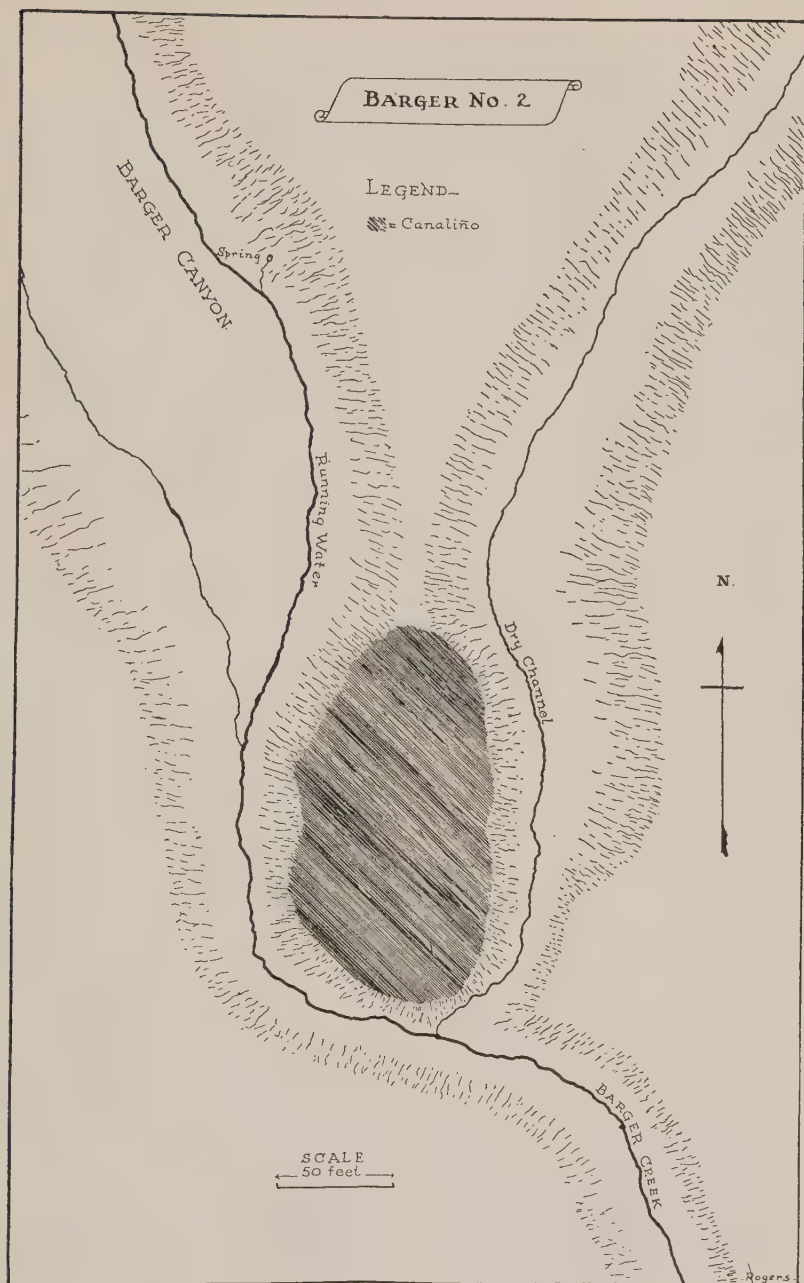
There had been such a wild orgy of excavation carried on here that we were able only approximately to determine the form and original extent of the cemetery. It was probably elliptical in outline, and measured anywhere from fifty to seventy feet in length by about half this in width. Its longest diameter had extended northeast and southwest. This entire area and much more in the immediate vicinity had been overturned to a depth of about thirty-six inches; at this depth one came upon hard, undisturbed subsoil. Our only significant finds in this jumble were a few beads and other ornaments of various materials, and several small arrow-heads and flint knives. These were sufficient, by their high degree of finish, to establish the fact that we were among the remains of the Canaliño. A few fragmentary skulls from the wreckage tend, by their indices, to confirm this classification.

Here were also found glass beads that fall under the two classifications of such objects. Two of them were of the ornately figured Venetian type, indicative of contact with the first whites to appear in the region, and several of the common "traders' beads" type, of the time of the Padres.

Beneath the refuse left by this people were found a very few of the manos and fragmentary metates of the Oak Grove People, although I found no trace of their settlement here. I believe, rather, that these scattered relics were only indicative of the occasional presence here of early day harvesters of acorns.

### (36) BARGER NO. 2

A quarter of a mile to the north of the site described under the heading Barger No. 1, the canyon forks. At the point of



MAP No. 12





The Crest of the Ridge upon the Horizon Was Formerly Occupied by the Village of "Cahinneh,"  
The Wright home is now near the center of the site



Our Investigations Have Conducted from the Foundations of the World Country House upon the  
Site of Ancient "S. (H. 1857)"

separation and only a few feet above the floor of the gorge, is a rounded ellipsoid, one hundred and fifty feet in length by seventy-five in width, that is blanketed with camp refuse. This must have been a charming site, situated as it was against the foot of the wooded mountain and with a powerful spring of fresh water nearby.

(37) "USHTAHASH"

About two miles northwest of the city limits of Santa Barbara and one mile north of St. Vincent's Orphanage, a jutting shoulder of the foothills is crowned by a country house, set in the midst of well ordered grounds. This setting again serves to emphasize the fact that in the selection of homesites the naked, barbaric aborigines of Santa Barbara shared the most advanced ideas of modern man. We find this home of civilized man in the midst of a dense mass of camp debris, and realize that the place has also been the home of races now all but forgotten.

The above mentioned lofty spur forms the eastern flank of a deep gorge that here emerges from the mountains. From the side of this gorge, and almost directly below the residence, gushes a strong spring of sweet water, which was probably the chief reason for the Indian settlement here.

Judged by the present distribution of camp refuse, the former village occupied the crest of the shoulder for a distance of six hundred feet north and south, and probably had an extreme width of one hundred feet. Over this area is distributed refuse to an average depth of thirty inches. As the work of farming and improving the estate has progressed, a great number of artifacts, both perfect and fragmentary, have been collected and cared for by the proprietor. These were very courteously placed at our disposal and proved of great interest, including as they do typical examples from the first, second, and third cultural epochs.

To the north and northeast, the site is flanked by a forest of oaks. These doubtless contributed largely to the maintenance of the inhabitants. This forest site, for a distance of five hundred feet from the village, has yielded many fragmentary and a few entire artifacts, but I do not look upon it as ever having been a residential quarter. I was told that an Indian burial was

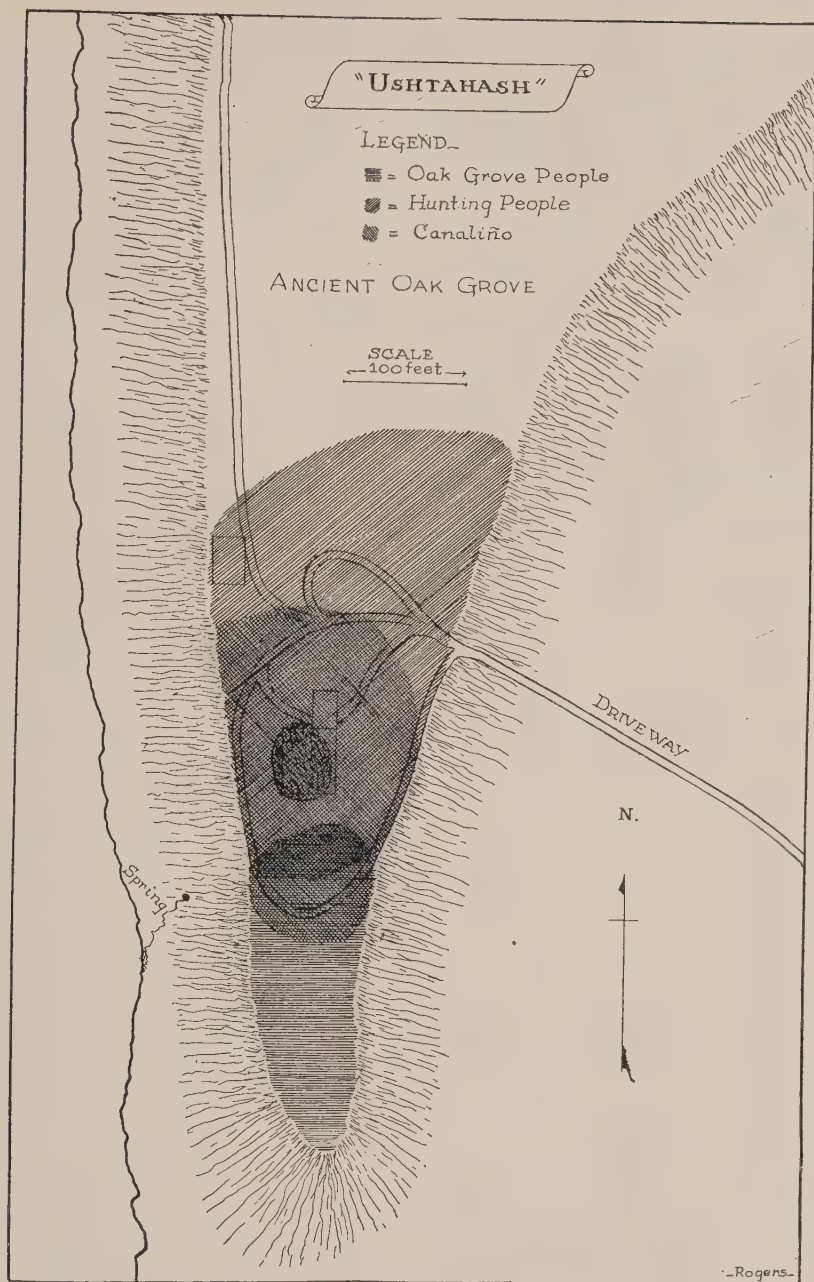
once thrown out here by the plow, but careful trenching in the vicinity of the reputed find failed to obtain any evidence of an established cemetery there.

Local tradition has also preserved an account of extensive excavations that were carried on at this place during the seventies by Stephen Bowers. Unfortunately for us, this tradition appears to be corroborated by the fact that, when the foundations of the present residence were laid, there were exposed quantities of fragmentary human bones that to all appearances had been exhumed by relic-hunters and afterwards shoveled back into the pits and covered up.

I was allowed free access to every part of the site that was available, and was able not only to check up on previously acquired information, but also to determine with certainty the sequence of cultures that had flourished on the site, and also the bounds of at least one cemetery that had been located there.

In the undisturbed portions of the camp refuse that are still to be found in isolated patches about the grounds, I noted a most remarkable cross section of superimposed strata, indicative of the passage of time, and also of the passing of races or at least cultures. The upper stratum, loose and mellow, and approximating eighteen inches in thickness, was the same as that so frequently seen in this region. It was intensely black and sooty and carried a heavy content of fragmentary shells, largely those of the *Mytilidæ*. There was also a noticeable content of fish and small mammal bones, principally those of the Brush Rabbit. Enclosed in this debris were found numbers of artifacts, principally fragmentary, which displayed a sense of beauty in their conception and a high order of mechanical skill in their production. I found pestles that were perfect in contour, thin-walled symmetrical stone bowls, and personal ornaments and weapons of superior workmanship. All the artifacts were of typical Canaliño culture.

The next stratum, of nearly equal thickness, showed an immediate and marked change of texture and of its ingredients. It was quite firm and fairly difficult to excavate, with very little of the black, "greasy" soot, although ashes were plentiful. Quantities of large sea shells, principally entire, were found, the "Pismo Clam" probably leading in abundance, closely followed in order by *Phacoides*, *Saxidomus*, and *Hinnites*.



MAP No. 13



There were also present many bones of the larger mammals. I noted no fish remains in this formation. The artifacts found imbedded at this level were few in number, but they differed widely in type from those at a higher level. I found basket-mortars, crudely formed, short pestles, small, hemispherical, angular-rimmed, stone bowls, and a few heavy, flint weapons. Even a novice, upon seeing this deposit, would at once classify it as belonging to a less advanced people than the Canaliño. It may safely be ascribed to a residence here of the Hunting People.

Beneath the last described stratum and resting upon the hard gravelly subsoil was another formation, no more than three inches thick in any part and in places only displaying a film. The material of this layer was hard and calcareous, almost stony. By examining this closely, one could find incorporated in it bits of charred material and fragments of shells. We have long since learned to recognize this layer as the fossilized refuse of the Oak Grove People, and expect to find imbedded in it and beneath it crumbling specimens of ancient oval manos and metates. The first people to arrive in the valley had utilized the ridge above the spring as a homesite.

I am convinced that each of the three Indian peoples who at widely separated epochs inhabited this region, have adopted this spur for a residence, even as it has again been selected by the white man. And I believe that each succeeding settlement had as little connection with that which had preceded it, as the present owner has with the former residence here of the Canaliño.

In all probability, none of the groups that resided here were very numerous. This, I believe, applies especially to the Oak Grove People, although in their case we can not judge with certainty from the limited depth of the refuse heap alone. There is at present no method by which we may gauge the degree of concentration to which this had been reduced, or the amount of erosion and wastage to which it had been subjected before the arrival of the Hunting People and the protection from erosion which it received from their blanket of refuse.

Pits sunk in close proximity to the dwelling produced quantities of human wreckage, very little of which could be utilized for anthropometrical measurements. A short distance in any

direction from the house I failed to encounter any human bones.

In digging the cistern, ten feet outside the northwestern angle of the dwelling, the owner found one burial in place. This appears to be the extreme bounds of the burial plot. The inference is plain, the location of the present residence coincides almost exactly with that of a former cemetery. In other words the burial ground of the Canaliño, we feel sure, was almost in the exact center of their campsite. Whether the cemeteries of their predecessors had also occupied this area we have no means of determining. We also failed to find any trace of hut, "temescal" or dance floor.

Basing my opinion upon the size and prominence of this site and its position, I believe that this is the site of Henshaw's "Ushtahash."

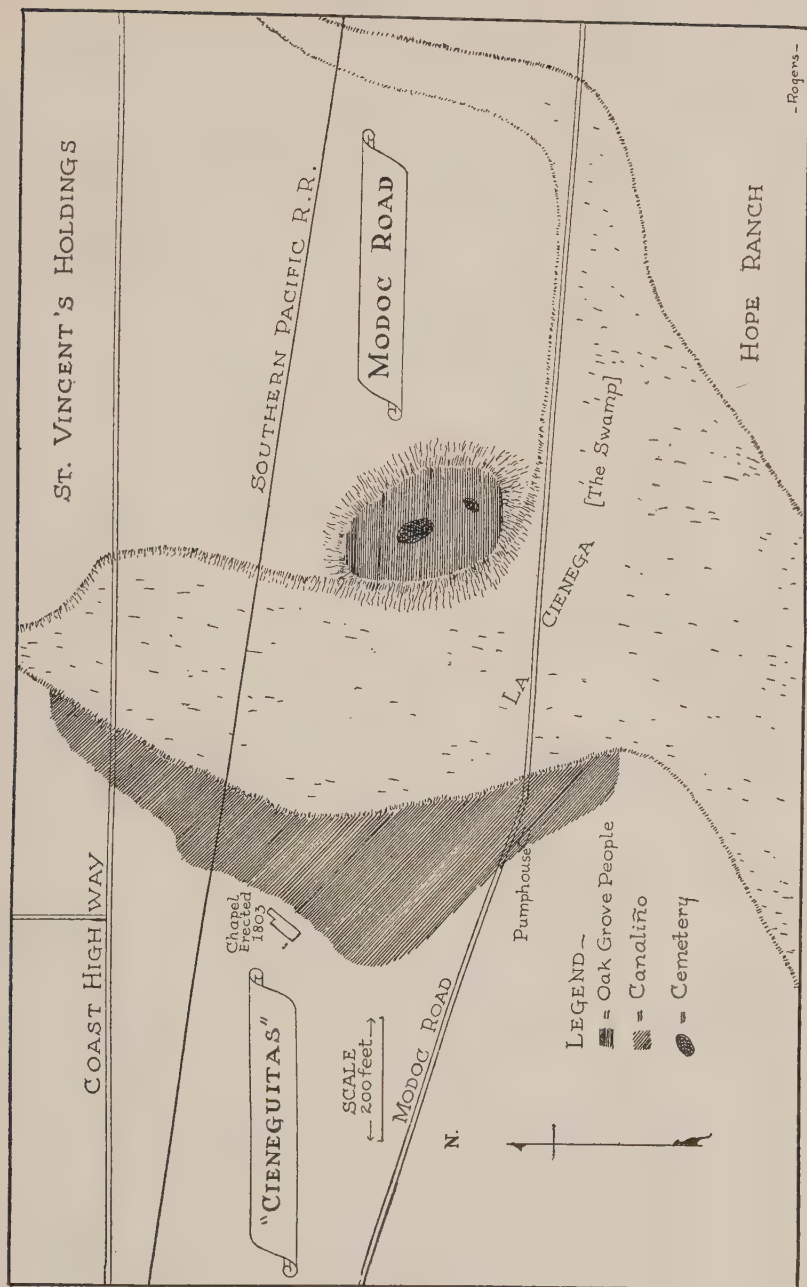
#### (38) MODOC ROAD

For a considerable distance beyond the western limits of the city of Santa Barbara, the Coast Highway and Modoc Road run nearly parallel courses, about one-half mile apart. About three miles from the city limits, they merge, but before doing so each crosses the cienega, or slough, from which the location has taken its name of "Cieneguitas" (the little marshes). At about the spot crossed by Modoc Road, the marsh separates into two distinct arms, which embrace a small, elliptical hill that rises one hundred feet above the level of the cienega. Upon the very crest of this prominent knoll lies the ancient site that is the subject of this discussion.

Below, to the west and northwest, lies the main arm of the morass, an almost impenetrable jungle of small trees, brush, vines, ooze, flags and swamp grass. To the south and southeast, the slough is a waste of swamp grass and tules. The entire area of the marsh is very miry, being fed by powerful springs. Closely following the western line of the slough was the rather extensive historic rancheria site of Cieneguitas, but I am convinced that the village site of which we treat had no connection with the one to the west, the latter being of much later date.

No tradition appears to have been handed down of the existence of a village on the hill to the east of the slough, and many people have asked what led me to dig here.

In the latter part of the year 1923 and in the opening months



MAP No. 14



of 1924, I was almost continuously afoot, prowling about the Santa Barbara valley in search of the long-forgotten Indian village sites that I felt sure must exist there. In the course of these wanderings, I visited nearly every acre of ground that in any way suggested former occupancy. In due course I came to the vicinity of Cieneguitas. The village upon the western border of the slough was known to all the older residents and its superficial aspects were easily read.

Above the tops of the trees, on the opposite side of the marsh, rose a rounded hill. I had found village sites on similar hills less advantageously situated and accordingly investigated this one. It was not difficult to see that the spot had been known to the Indians, for over its cultivated surface were to be seen several fragments of shells and a few fragments of stone artifacts. But no trace could be found of the customary "Indian soil," with its sooty, greasy texture, or any evidence of ash. In fact the place gave little evidence of having been used as a permanent settlement. The presence of an appreciable amount of food refuse, however, encouraged me to persist in my exploration.

At the side of the knoll, cultivation had brought to light soil of a different texture, a hard, calcareous formation of a light gray color. This had apparently been derived from a stratum near the surface of the crest, the edges of which had been uncovered as the sides of the hill were reduced by cultivation and erosion. Upon analysis, this peculiar soil was found to consist of ashes, charred material, bits of shell, and a calcareous cement, all compressed into a dense mass, only a little short of the consistency of stone and very reminiscent of the fossilized kitchen-midden of Burton Mound. This in itself was very suggestive. When later I again investigated the spot and found upon the summit a ground-squirrel's burrow, from the tailings of which I screened a crude flint knife and a fragment of a human frontal bone, each incased in the same calcareous material, my evidence was complete.

I drove a series of test trenches along the crest of the knoll, one of them eventually reaching considerable proportions. These excavations showed that soil, built up by various processes, blanketed the northern two-thirds of the top of the hill to a quite uniform depth of forty inches; this blanket varied widely in its constituents at different depths. Throughout a large part

of the excavated area, at about the twenty-four inch level, an almost unbroken pavement, ten inches in depth, of primitive oval metates was found, bottom up. Over fifty of these clumsy utensils were found. In every instance they were greatly disintegrated, often crumbling to bits upon being lifted. Others, although retaining their shape, were very fragile. Accompanying them, and filling in the interstices of the pavement, were many oval manos, at least two to each metate. These, too, were greatly decomposed. All of these remains were found in the hard calcareous fossilized kitchen-midden. This material adhered very closely to the artifacts. It had a heavy ash content, cemented with decomposed shell refuse. This material reached to the forty-inch level where it rested conformably upon the hard, yellow, siliceous clay of the original surface.

Resting upon this original surface and beneath the pavement of artifacts mentioned above, were the vestiges of many human skeletons, all very fragmentary; the fragments, apparently in the first stages of petrification, were enclosed in a hard matrix, difficult to remove. Only one of these skeletons was in anything like a complete condition. They were so fragmentary that little information as to their posture could be secured. A few minor artifacts of flint, of an extremely crude pattern, accompanied them.

The hard stratum that enclosed this material varied from a film to a thickness of fourteen inches, the greatest depth encountered being at the very crest of the dome. A few pits, sunk at random, disclosed the same formation, with the imbedded human fragments, but without the superimposed pavement of artifacts.

A careful clearing of the upper surface of the hardened refuse showed the effect of severe erosion, the bed being corrugated by numerous gullies that had, in many instances, been later filled in with refuse or utilized as fireplaces. From the surface down to the stratum of artifacts, the soil was found to be dry, nearly black and quite mellow, and superimposed non-conformably upon the ancient refuse to a depth of from twenty to thirty inches. An intensive study was made of this stratum, and evidences found in abundance that threw light on the process of its formation. The imprint of great stumps and fallen limbs were found imbedded in masses of leaf mold. It is worthy

of note that no evidence of forest materials was found beneath the hardened camp refuse.

Throughout the upper formation were found scattered sea shells, many of large size, the claws of crabs, lumps of asphaltum, the bones of land mammals and a few fish bones. No marine animals were found, nor was there any evidences of ashes, fire-places or hut sites. Another characteristic of this stratum was the frequent occurrence of fragments of stone utensils of a high order of finish, evidence that a much higher type of culture prevailed at the time of its deposition than in the case of the strata found beneath.

In this upper black stratum, where it capped the southern brow of the hill, were found two burials of a much later date than those found in the hardened layer of gray refuse, which, by the way, did not extend to this part of the hill. These later burials, undoubtedly those of the Canaliño, were in the accustomed posture, flexed, face down, with the heads directed towards the west-southwest. No artifacts were present to confirm my belief as to the age they represented, but the well preserved condition of the bones and the method of burial were sufficient.

Little more can be said of the actual material found here, but a wide vista of conjectures and possibilities is opened. The most striking thing on this little hill is the clear-cut evidence of the succession of events that it has witnessed within the time of man. Of only slightly less interest is the unmistakable story of the enormous lapse of time required to build up the superimposed coverlets of soil that cap this exposed knoll.

The succession of events at this site appear to have been as follows:

In ancient times, just previous to the advent of man in this region, the crest of this prominent hill was probably entirely bare of vegetation, its hard, barren, clay summit rising from amidst a forest of live oaks that grew luxuriantly on every side. This place of vantage had been selected as a village site by one of the earliest groups of ancient people to invade the valley, and had been occupied as such through a period of centuries, perhaps ages.

In spite of its exposed situation and the terrific down-pours of that age, which eroded the mountains and gullied the detritus into fantastic forms, this hill eventually accumulated a great

cap of kitchen-midden materials. At the heart of this was early established the community burying ground, over the central portion of which were carefully laid, face down, great numbers of the massive, crude mealing stones, or metates, the interstices filled with oval manos, or hand stones.

The writer believes that this burial form may be traced directly to the nomadic ancestors of this people, and was adopted in a period of their development during which the only available method of protecting their dead from the ravages of the predatory animals was to weight the grave with stones. This precaution, consistently carried out throughout the ages that had witnessed their slow pilgrimage from the steppes of central Asia, had by the time of their arrival at the cienega become a ritual. And what more natural than to use as grave markers household furnishings of the departed?

After a long passage of time the settlement was abandoned. The cause, or causes, that led to this move again lead us into a maze of conjecture. Of at least one item we are positive. Fierce storms continued to levy tribute upon the great refuse heap, washing and gulying its surface, and dissolving its remaining components into a homogeneous mass. One portion of the site alone remained practically unwasted, the plot protected by the upturned metates. Here, however, a certain amount of dissolution had gone on, so that the pavement had settled to a lower level. During this period, the surrounding forest, attracted by the new and fertile soil, had slowly encroached, till it had completely covered the hill and prevented further surface erosion. There then began a deposition of decaying vegetation that eventually produced the dark stratum of humus that we find clothing the hill today. The oaks with their sweet fruit attracted the Indians of a much later day to their shade at acorn-harvest time, and these visitors, having taken with them food for the occasion and the utensils for the reduction of the harvest into food condition, might easily account for the scattered camp debris throughout the entire depth of the black humus layer. Meanwhile the great mass of disintegrated kitchen-midden that lay beneath had been compressed by the superimposed forest and had hardened into almost a rock formation.

No evidence of contact with the whites was found here, and

there survives among the whites no tradition of oaks ever having clothed this hill. Hence I have assumed that, sometime previous to the advent of this alien race, there came a catastrophe that destroyed the great trees, and the Indians no longer made it a rendezvous. After diligent search among existing records and local traditions, we must conclude that there has been no occupant there for at least a century and a quarter, and in all probability for a period much longer than that.

The presence of the two comparatively recent human skeletons, found upon the southern brow of the hill, is perhaps accounted for by the fact that, within historic time, an aged Indian couple lived in a hut beside the spring, at the southeastern foot of the hill. The woman died a natural death and was buried somewhere in the vicinity. Years later, "Old Lino," the man, blind and helpless, was put out of his misery by a sympathetic young Indian, and he was probably buried beside his consort. I may have found their resting place.

(39) CIENEGUITAS

(See map, p. 125)

About four miles west of the business center of the city, and nearly in front of St. Vincent's Orphanage, the highway crosses an inconspicuous ravine in which thick undergrowth and small trees form an almost impenetrable jungle as far south as Modoc Road. Throughout this tangled growth meander spring-fed rivulets that in places expand into treacherous bogs, a characteristic that early gave to the locality the name that still endures, Cieneguitas, "the swamps." Within this treacherous morass, "The Lone Wolf" made his lair in 1924, and here is still hidden a large part of his loot, guarded by the forbidding nature of the thicket to whose care he had intrusted it.

The first mention of Cieneguitas that we have found in the annals is when, on the morning of August 20th, 1769, Captain Gaspar de Portolá, at the head of his little army of sixty-five leather-jacketed soldiers, and two Franciscan monks, emerged from Arroyo Burro, where they had camped the night before, and were met by a reception committee from the extensive village that clustered about the slough.

At the time of the founding of the Mission, for some unknown reason, this village alone, of the many in the vicinity,

was permitted to retain its organization. Early in 1803, the friars even went so far as to erect a substantial adobe chapel for the use of the villagers. This was located immediately to the west of the cienega, about midway between the present Modoc Road and the Coast Highway.

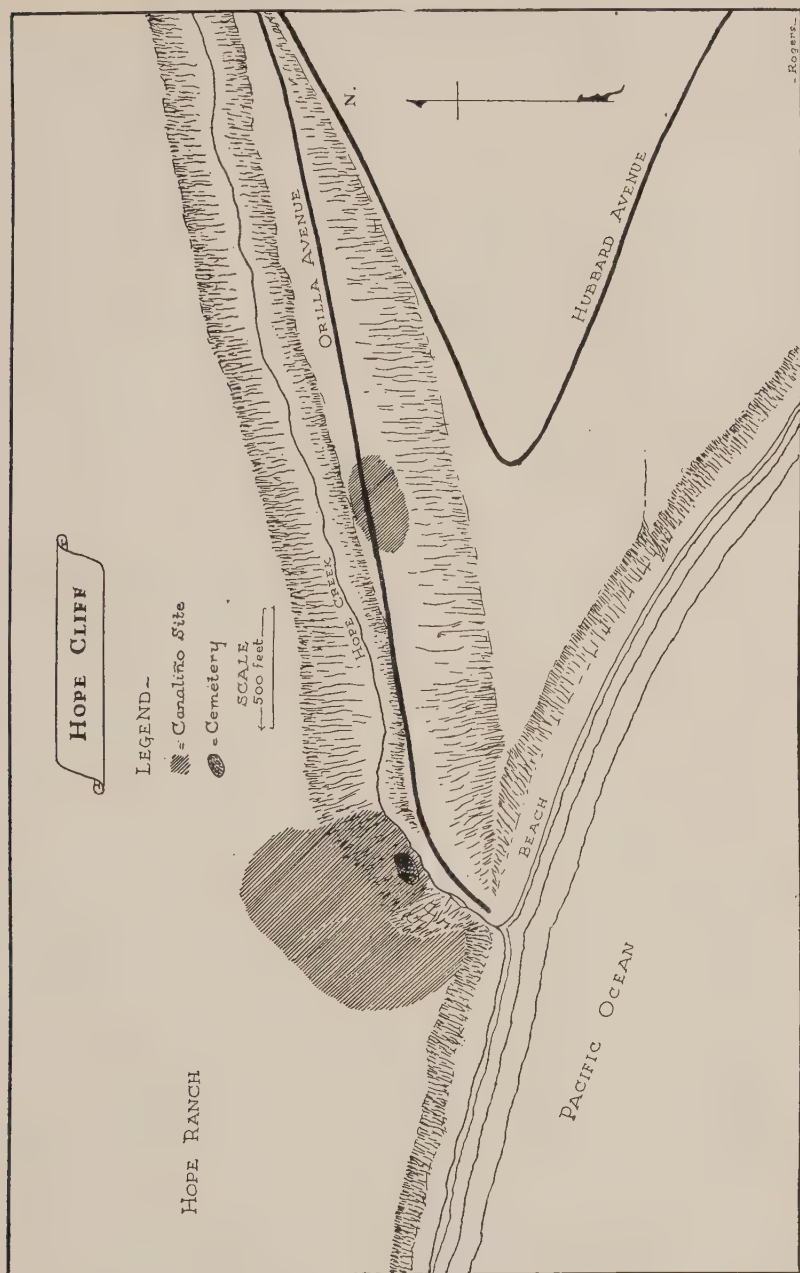
About this same time, several substantial, single-roomed adobe residential huts, with tile roofs, were erected for the natives. These cabins, furnished in true Canaliño fashion with native beds, tule mats for partitions and floor coverings, and woven wicker slings hanging from the ceilings, to hold personal belongings, were in common use during inclement weather, but tradition has it that it was a common practice among the villagers to erect the ancient "jacales" of their forefathers and to occupy these during many months of each year.

All of the structures erected under the guidance of the fathers were especially sturdy. As late as 1886, a large part of the chapel was still in place, and the neighboring children frequently climbed to the organ loft to extract more or less melody from the few remaining keys of the antiquated melodeon that had in times past accompanied the solemn chants of the neophytes.

When the Santa Barbara Mission was destroyed in 1812, it was to this strongly built little sanctuary on the banks of the cienega that the Franciscans repaired for a time, to offer mass. At one side of the wide entrance of the chapel stood two massive, forked posts crossed by a heavy beam from which were swung three sweet-toned bells, lashed in place by rawhide thongs. Within the memory of those still living, these bells responded to the taps of wanton sightseers.

The population of the once teeming village was, even before 1840, rapidly diminishing in numbers. Early in the seventies, an agent, Thomas Hope, was appointed by the government in an attempt to ward off from the Indians at least a part of the evils attendant upon contact with the whites. This had little effect and, by the year 1880, only a handful of degenerate natives clustered about the crumbling walls of the chapel.

Some strange fatality now dogged every step of this pitiful remnant, culminating in one of those acts of cruelty that occur too frequently in the history of the Indians. Thirteen old and heartbroken men and women were evicted from the home that



MAP No. 15



had been theirs for countless generations, by officers of the law. The further story of this hapless group has been to a large extent lost, even to tradition.

#### (40) HOPE CLIFF

From a short distance west of Santa Barbara, where the Arroyo Burro breaks through to the sea at Hendrys Beach, the almost perpendicular sea-cliff extends for miles to the mouth of the Goleta Slough, practically unbroken except at one place. Where Hope Ranch borders the sea, there enters a deep narrow gorge, at the mouth of which is only a trace of an estero. High on the crest of the western promontory here, extending for over five hundred feet north and south, is camp refuse indicative of former residence by the Indians. It appears to reach no great depth at any part, probably twenty inches being the limit.

Over the cultivated surface are to be found occasional artifacts, indicative of the third cultural stage of advancement. Many test trenches at the time of my first visit, early in 1924, failed to locate any of the prominent features of a typical village. At that time, I also explored a limited deposit of camp refuse, located a short distance up the canyon, and blanketed by a dense forest growth. This well sheltered location had probably been resorted to in times of severe weather. Little was learned from the exposures at the time.

In 1928, a bath house was erected at the mouth of the canyon, only a few feet above tide level. During the process of grading for this improvement, the western bank of the ravine was cut away for a short distance, and, at the top of this new exposure, the margin of a cemetery appeared, from which a dozen or more skeletons were taken. The side of the bluff is here heavily clothed with brush, principally sage, and even if permission could be obtained for exploration, the process would be very slow and laborious. I believe, from the evidence already obtained, that we may safely ascribe the entire site, during its entire history, to the third culture.

#### (P) COUNTY FARM

Slightly to the northeast of the buildings upon the Santa Barbara county farm, is a deposit of camp refuse that covers

a considerable area. Long cultivation and heavy erosion has done much to efface the evidence here, but I believe it to be of the Canaliño period, basing my opinion exclusively upon the ingredients of the refuse heap and the condition in which they were found.

#### (41) SAN MARCOS ROAD

A few rods to the right of where the San Marcos Road crosses the bridge and begins to climb the mountains, upon the lower terrace of a foothill, is a small but highly developed site of the Canaliño. I made no excavations there, but the typical kitchen midden gives every promise of extending to considerable depth.

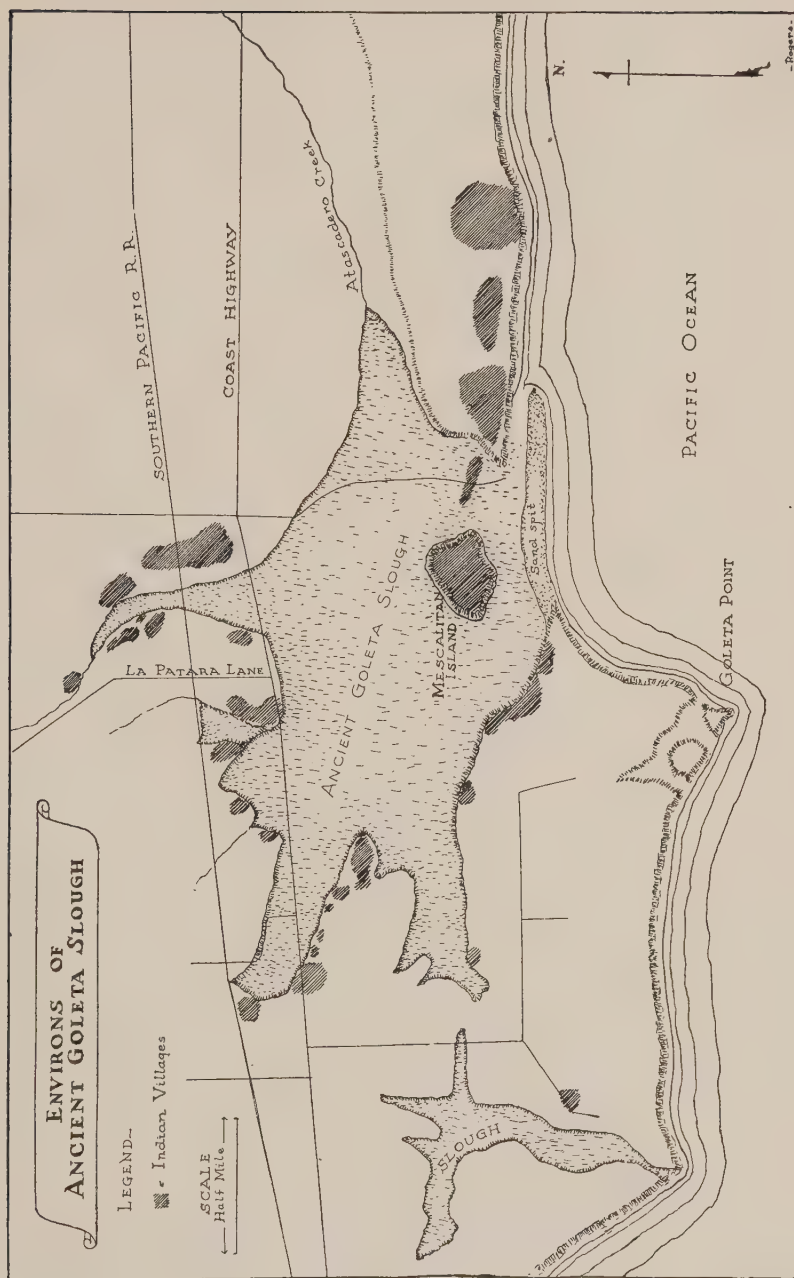
At the southwestern edge of this site is a large earth-bound boulder, the flat upper surface inclined somewhat toward the southeast, that is, toward the center of the village. Upon this surface are a large number of "cup marks," very uniform in size and arranged in a methodical pattern, consisting of a central grouping of nine cups, several adjacent smaller cups, and a long, meandering line that may or may not indicate a map of the region about the village. No less than seventy pits are used to form this design.

#### (42) (43) (44) EAST SIDE OF GOLETA SLOUGH

The flat top of the extensive mesa to the east of Goleta Slough, within the boundaries of the John More ranch, bears at least three great rancheria sites, separated from each other by wide intervals. One is near the eastern promontory, another near the eastern bounds of the estate and a third near the ranch buildings. I did not have an opportunity to explore any of these.

#### (45) TWIN MOUNDS

A few hundred yards to the east of Mescalitan Island, on the very floor of the slough, are two small, closely adjacent mounds that display upon their surface the sooty soil, rich in fragments of shell, which indicates former occupancy. During the summer of 1927 a fairly complete exploration of the site was made for us by two representatives of the University of California, Messrs. Olson and Hill. I believe that this site is at the lowest altitude of any mound in this region; at present it is not far above high



MAP No. 16



tide level. It is completely covered by a dense mass of marsh growth.

Each of the two prominent mounds was pierced by a transverse trench. In the eastern mound the original silt was reached at six feet and four inches below the present surface, in the western at seven feet and eight inches. The trenches cut through typical debris the entire distance. The most noticeable ingredient of the refuse was the large percentage of bones of marine mammals. A very few typical utensils of the Canaliño were found. At a depth of four feet and eight inches a burial was found; the skeleton was flexed, face down, with the head pointing west-south-west. With it was a bone awl, a bone fish hook, and two small, well-made flint arrowheads.

For a long and practically continuous period, a residence had been maintained here by a considerable group, in a unique environment, with no apparent reason for this peculiar choice of a homesite. Upon the adjacent heights in every direction existed great rancherías, above the attacks of insects, high tides and winter freshets. Yet the people of this particular settlement chose to make this their permanent abode, the first settlers establishing themselves upon a sandy mud bar, so low that the brackish water of the lagoon now stands at a level of over a foot above it.

At the time of its final and greatest development, this village extended northwest and southeast for a distance of six hundred feet, but it was apparently never more than eighty feet wide at any place, consisting probably of a single row of huts. It is probable that each recurrent tide swept its boundaries, completely surrounding it with an all but impassable morass.

During recent years erosion of the neighboring uplands has spread sheets of loose, sandy soil, intermingled with miscellaneous drift, over large tracts of the former slough. This has left the site practically flush with the surrounding silt.

A few indications point to an occupancy of this site by the Hunting People, but our investigations fell short of completeness, and this classification is still a mooted point.

(46) "HELO"

Mescalitan Island lies between the two headlands that bound the mouth of Goleta Slough. High, rounded in contour and, in earlier times completely surrounded by the waters of the marsh,

the place was an ideal location for the great Indian village that at one time almost completely covered it. It was known to the aborigines by the appropriate name of "Helo," meaning "water all around." Two strong, never-failing springs of fresh water were also a great asset.

Over a large portion of the surface is spread a heavy blanket of camp debris, whose ultimate depth is conjectural. Yarrow and Henshaw, who devoted some time to the spot in 1875, reported rich finds from the five foot level. My personal observations led me to believe that much greater depths exist in portions of the heap. I examined many choice artifacts from the site, all of which were typical of the highest attainments of the Canaliño art. Besides the evidence offered by these remains, the chronicles of the conquistadors show that it was a very important settlement. Cabrillo's chronicle even speaks of it as a capital with a resident queen.

(47) (48) (49) (50) SOUTH SIDE GOLETA SLOUGH

(See map, p. 137)

The present southern rim of Goleta Slough coincides exactly with that of the former slough. Here rises a chain of abrupt bluffs, low toward the west but increasing rapidly in height toward the east. At the western end of this series of bluffs is a rounded knob, almost directly south of the site described as Campbell No. 2. Over the crest of this mound is scattered sparsely the characteristic camp refuse of the Hunting People. No excavating was done here, but it appears to have been an unsuitable site for the Oak Grove People. If the Canaliño had been present here for any length of time he would presumably have left some record of the fact in the superficial deposits. Basing our deductions upon this negative evidence, we will for the present consider this site as having belonged exclusively to the Hunting People.

A half mile to the east of the above described site, on the Storke holdings, and near the brink of a low, precipitous bluff, is another deposit that is in every way similar to the preceding.

Passing the boundary of the Storke holding, we cross the property formerly known as the "Japanese Gardens," but now controlled by the Bishop estate. From the extreme eastern point

of this tract, and extending for over one-fourth of a mile west along the brink of a high bluff that overlooks the slough, is a practically unbroken deposit of camp debris that in places reaches a depth of six feet. This formation in no place appears to reach very far inland, the greatest width noted being no more than two hundred feet. In several places it was no more than fifty feet. I found nothing upon the surface that would indicate that any other race than the Canaliño had ever resided here.

## CHAPTER IV

### DESCRIPTION OF SITES (Continued)

#### THE CAMPBELL RANCH SITES, NOS. 1, 2 AND 3

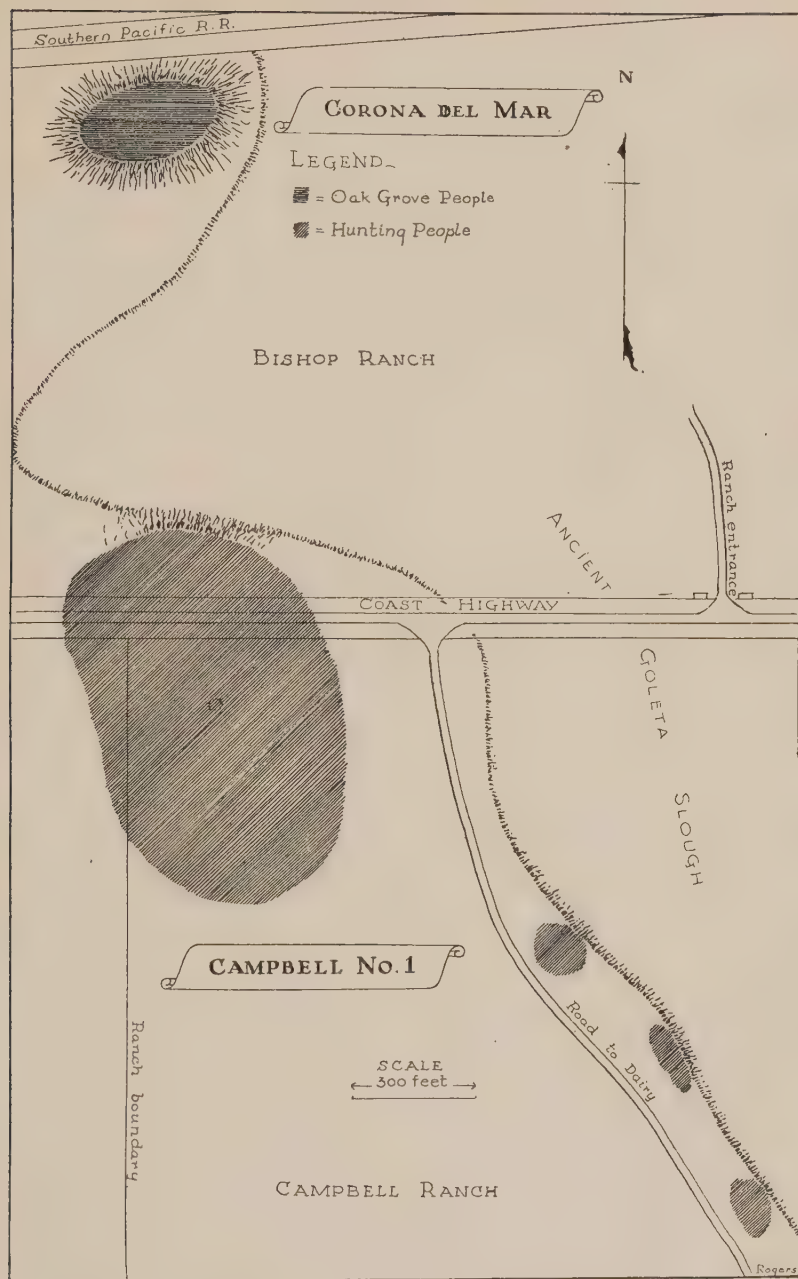
TEN miles west of the business center of the city of Santa Barbara the Goleta Valley reaches its greatest width. At the place where the Coast Highway rises from the low, level tract once occupied by the reaches of Goleta Slough is the Campbell Ranch, occupying an extensive acreage between the highway and the sea and skirting the entire western shore of the great estero.

Upon my first survey of this holding, in the early spring of 1924, there seemed to be three distinct sites, which I arbitrarily designated as Nos. 1, 2 and 3. After a careful study, I decided that sites No. 1 and No. 2 might be considered as parts of one extensive settlement, the two main lobes having been united by a straggling line of huts, but as the investigation of these two major portions of this rambling site was carried on independently and the data regarding each kept entirely separate, I have kept them separate in this commentary.

#### (53) CAMPBELL No. 1

Soon after the Coast Highway leaves the level western edge of the former great Goleta Slough, it passes through a pronounced cut. In the upper levels of this cut, overhanging the roadway, great quantities of food refuse are exposed, especially the large shells of the Pismo clam. Each bank of the road-cut offers a display of this debris. It is evident that the highway bisects a rancheria site. A careful survey of the vicinity shows that only a small portion of the village extended to the north of the present highway; there is a strip no more than one hundred feet wide on the Bishop holdings of "Corona del Mar," but this small area is largely devoid of interest.

The entire length of the elliptically bounded settlement was approximately nine hundred feet, with a width of six hundred feet. Of this area, a section eighty feet wide across the entire site



MAP No. 18



has been entirely destroyed by road building. The greater portion of the undisturbed area is found to the south of the highway, most of it within the Campbell ranch, although a triangular strip extends beyond the line to the west. The Campbell portion is set to a young walnut grove, which is kept in a high state of cultivation and frequently irrigated. Over the entire remaining surface of the site lies a dense blanket of camp refuse. I found no evidence of earlier excavation and could learn of none ever having been carried on here. I was told that when the main water line, which skirts the highway, was laid a few years ago, several artifacts and human bones were exposed.

In April, 1925, over forty trenches were driven through parts of the deposit. A dense blanket of debris that ranged from thirty-six to forty inches in depth apparently clothed the entire area. Shells of many varieties were incorporated in this coat; beds of exceedingly large Pismo clams, which at some levels practically excluded all other species, were particularly noticeable. These were especially numerous at the base of the formation, thirty-six inches below the surface. There were numerous nodules of asphaltum and great quantities of flint chips. Flint utensils and weapons were of frequent occurrence, both entire and fragmentary. Numbers of bones of the larger mammals, including the whale, seal, sea-lion, elk, deer, bear and badger were found in the beds of Pismo clams and Red Abalone (*Haliotis*). My conclusions regarding this site must be drawn largely from the presence of the large, rather roughly made but efficient flint creations, from the process of their manufacture, and from the food refuse illustrating their use.

The almost total absence of former structures is probably the first item of importance. In the majority of sites, traces of huts, of a temescal and a dancing platform, perhaps even of a council enclosure are looked for and usually found. In the present instance I found practically nothing of the kind at this site. I found only one circle, a rather indefinite barrier with no traces of an enclosed floor and of a size that left its significance doubtful; it was too large for a hut and too small for a ceremonial platform (twenty-eight feet in diameter) and showed no signs of long usage. It may have served as a shrine or possibly as a council enclosure, though in the latter case it is hard to account for the low walls and the absence of all furnishings.

Next in interest was the series of flint creations from the village, which at first glance showed a marked difference from the generally accepted Canaliño type. Large, business-like weapons were numerous; the heavy arrowheads had, as a rule, exceptionally vicious barbs, a feature that had hitherto been of rare occurrence in this locality. Masses of flint chips attested to a great activity in the production of these weapons, and the presence of the bones of large mammals in great abundance showed that the people were a fearless and tireless race of hunters who went far afield for their food supplies.

A careful search for the village cemetery met with failure; not a single human fragment was encountered in the handling of many yards of earth. A road crew who were widening the cut that divides the site, found a skeleton forty-two inches below the surface. It had a short head with a high brow and was unlike those heretofore found in this region. Although of such distinct physical characteristics, the skeleton itself was in the posture most generally found here, flexed and face down, with the head to the southwest. The presence of this skeleton at the roadside may account for my failure to locate the burial ground; it is barely possible that it once occupied some part of the area now eliminated by the highway cut. Until after the close of the work in this field, it had never occurred to me that an intermediate people or culture had perhaps occupied the region during the hiatus which, as I had early discovered, existed between the disappearance of the early race and the advent of the Canaliño.

Later I had an opportunity to examine a set of five mortars that I have every reason to believe came from the above-mentioned road-cut. They were flat slabs of stone which had upon their surface shallow, circular cavities, surrounded with asphaltum and differing radically from the mortars heretofore found. I now feel certain that we have in Campbell No. 1 a typical village site of the race that occupied the Santa Barbara Valley for at least a part of the interim between the vanishing of the Oak Grove People and the arrival of the Canaliño. This unique people I have since termed the Hunting People.

As the site never supported an earlier or later people or culture, the age of its accumulations could only be conjectured. Identical conditions found later and associated with earlier or more recent deposits, served definitely to establish the Hunting

People in the chronological sequence of the pre-history of the region.

Had I made these determinations previous to the spring of 1925, Campbell No. 1 would probably have been more of an open book to me. I now believe that the Hunting People were semi-nomadic in their habits, shifting their flimsy abodes on slight provocation or as a whim dictated and eventually covering a large territory with a comparatively sparse population. The combined area of Campbell Nos. 1 and 2, united by scattered settlements, is over one-half mile in length.

(52) CAMPBELL No. 2

Campbell No. 2 is another of the score or more of sites that at one time or another bordered the old Goleta Slough, "La Patara." I had always been extremely interested in this site. It was of great extent, uniquely situated and, so far as I had been informed, had never been attacked by the spade of the relic hunter.

The slough, which in former times covered a much wider territory than at present, was divided at its western extremity into two great arms, between which lay a long, low spit of land, only a few feet above the water. This spit is about one-fourth of a mile in length, and at its widest part the center is possibly twenty rods wide.

By employees of the Campbell ranch, of which this location is a part, it is called "The Island," but it is not really an island and never was one, for it is joined to the western mainland by a narrow neck that dates back to ancient time. This neck and the adjoining land have, as a base, a ridge of hard, impervious, yellow clay, which owes its origin to detritus torn from the mountains in an earlier age. To the top and southern side of this ridge have been added, during the ensuing ages, quantities of silty debris from the erosion of adjoining uplands, giving to the "island" its present contour. It is all now an intensively cultivated field.

Closely following the original lines of the ancient clay ridge, along the northern side of the spit, covering the entire width of the narrow connecting neck and widening out over quite an area of the mainland, is to be found the kitchen refuse of its early occupants. This debris, formed principally of shells and the

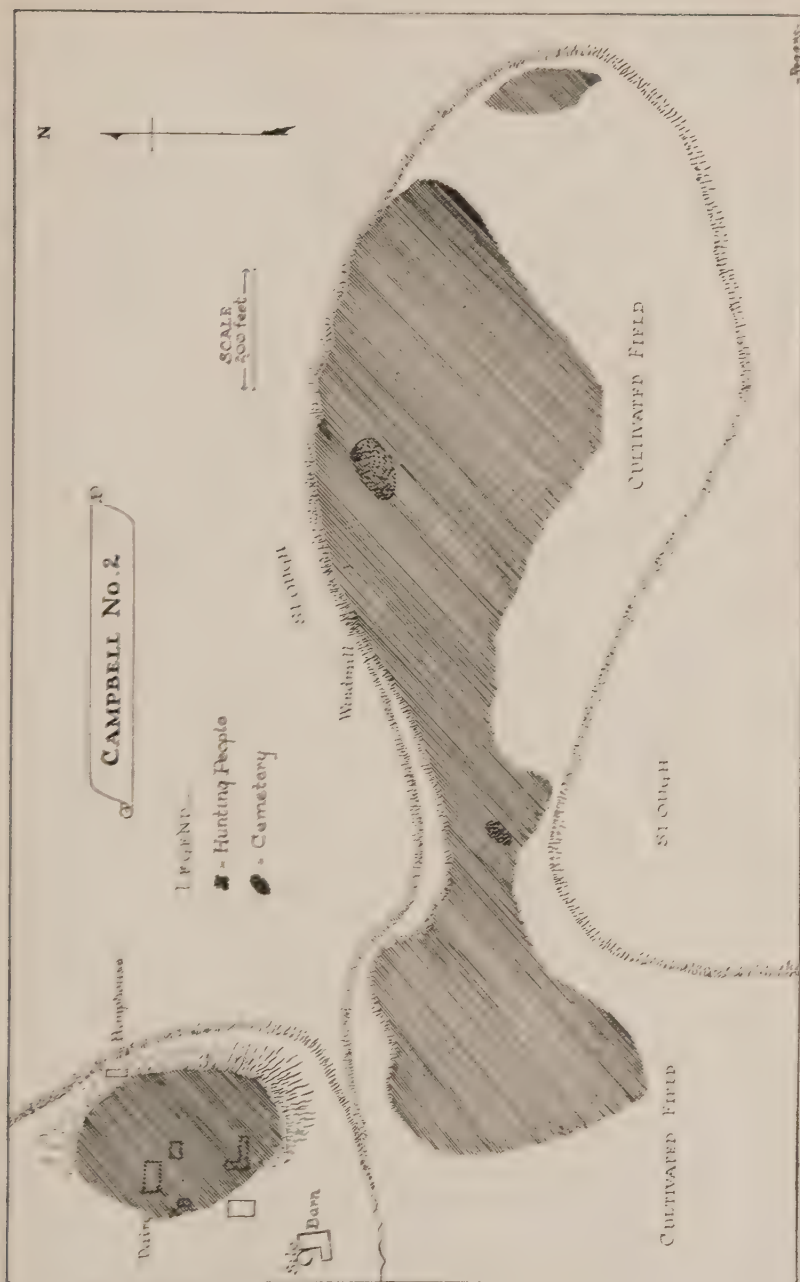
easily recognized characteristic black, "greasy" soil, reaches to a quite uniform depth of about thirty inches and rests directly upon the hard yellow clay. The refuse heap here has a total length of sixteen hundred feet and an extreme width of five hundred feet. Its longest diameter reaches almost due east and west.

Several rods to the north of the west end of the refuse heap just described and separated from it by a shallow ravine, is another deposit of kitchen midden material of even greater depth, averaging thirty-six inches in thickness. This division is of limited extent: it is elliptical in outline, three hundred feet in length by two hundred feet wide, and is almost completely covered by the residence and out-buildings of the ranch dairy. Extending from the two groups just mentioned along the western border of the former slough to the northwest, small deposits of kitchen debris occur at fairly frequent intervals until they finally reach the greater site indicated as Campbell No. 1. Apparently the two large and well defined sites were loosely connected by straggling huts.

Mention should also be made of a small inconspicuous settlement that was once located at the extreme eastern end of the spit. This location, which displays the customary shell accumulation over an area one hundred and fifty feet long by fifty feet wide, shows an almost total lack of the black, greasy soil that is ordinarily associated with the kitchen debris. I think it probable that this small site was never used as a residential plot, but served as a favorite boat landing, or port of entry for the cargoes of sea food that formed such an important part of the Indians' daily food supply.

My advent at this site, in April, 1925, had been auspiciously timed. The field had been recently plowed and harrowed, and had been drenched by the final rains of the season. It was absolutely clear of all growth and displayed upon its newly washed surface an indescribable wealth of material, which recorded the details of the intimate life of the people who had long ago lived there. Moreover, to add to my good fortune, this field, from its isolated location, had not been the regular haunt of relic hunters.

Evidence of the food habits of this village was on every hand. There were vast accumulations of the shells of abalone and the Pismo clam, similar to the deposits at the neighboring site, or



MAP No. 17



suburb, Campbell No. 1. Interspersed with these more prominent species, were found, in lesser numbers, shells of every variety known to this coast, among which the great orbicular *Polineces* was conspicuous.

The numbers of bones present was also a striking feature. In the majority of cases these proved to be those of marine mammals, whales and various members of the seal family. Land animals were only slightly less numerous. It was interesting to note that they were the bones of the larger and hardier beasts, elk, deer, bear, and mountain lion; the bones of the coyote were also of frequent occurrence.

Asphaltum, in compressed cakes and nodules, occurred in great abundance. This commodity appeared to be restricted to certain areas, as though its use had been less a household function than a centralized act of manufacturing or repairing.

Anvils, hammers and quantities of flint chips spoke plainly of an intensive activity in the creation of weapons and cutting tools. There were examples of every phase of the flint industry: the spall, the initial flake, the core, the shaping flakes, the blank, the retouched flakes and the finished product in its various forms. And these finished forms! Almost at every step they were to be seen upon the surface—massive knives, planers, drills, spear heads, arrowheads, all suggestively businesslike, although lacking somewhat in the refined finish usually noticeable in the weapons from this locality. Over one hundred of these splendid specimens were found thus exposed upon the surface. Several of the arrowheads and spear heads were somewhat broken, examples perhaps of another form of activity, the replacement of broken parts of weapons.

An outstanding feature of the surface exhibit was the dearth of vessels. Those that were found belonged to a very narrow field of creative talent; they were small, sub-orbicular stone bowls and shallow circular mortars, the cavities surrounded by a ring of asphaltum. A few short, non-symmetrical pestles were found.

One object that appeared entirely incongruous was an ancient oval metate. I did not consider this site as in any way suitable for occupancy by the "Ancient Ones," the Oak Grove People; nevertheless this utensil had belonged to them. I shall return to this matter in a later paragraph.

The great extent of the site, its lack of prominent topographi-

cal features, and the very evident difference in the customs of the people who had once inhabited it, when contrasted with those with whom I had heretofore been in contact, made the initial work of detailed exploration extremely arduous. Thirty-seven quite extensive test trenches were driven through the most promising parts of the site. During this activity not a trace was found of anything that could be termed a structure or enclosure. Fire-places of assembled boulders, burned red and buried beneath heaps of ashes, and surrounded by a miscellany of debris, were of frequent occurrence, but so far as I was able to determine, had in every case been located in the open.

At this stage of the investigation I had recourse to a strategy to which I have frequently resorted. I had, in the course of my superficial examination of the field, made note of the localities where subterranean animals had been active in spring house cleaning. Small heaps of recently worked soil, showing dark against the surrounding rain-washed surface, told of the presence beneath me of the long, underground corridors of the Coast Pocket Gopher, which were being renovated preparatory to the arrival of additional members of the family. I recalled how averse the animal is to the presence of any obstruction in its hallways. I therefore proceeded carefully to screen many fresh piles of earth. I found many entire, small sea shells, many fragments of larger shells, flint chips in abundance, a few arrowheads, and a bead of wampum. Finally, among several small fragments of unidentifiable bones, I found one that I recognized as a human metacarpal. I immediately ceased screening and sank a wide trench at this point. I was convinced that where the gopher had found parts of the hand, I should find the entire skeleton, and I was not disappointed.

This trench, extending north and south, was sunk slightly east of the narrowest portion of the neck that connects the "Island" with the mainland, about half way across the refuse heaps. I found here a small cemetery of straggling burials, each skeleton at a considerable distance from its neighbor. In no case was there an indication of formal burial. The bodies lay in the most impossible postures imaginable, with heads pointing to every angle of the compass, some even downward. No accompaniments whatever were found with them. These bodies had not been disturbed since their burial and bore every indication of

being extremely old, usually crumbling at a touch. In a few instances they were partly inclosed in a hard, calcareous matrix.

So unsatisfactory were the results here that I continued the exploration elsewhere on the site. On a prominent part of the field, near the eastern edge of its widest part, I finally located an orderly, thickly occupied burial plot, the majority of the burials being laid east and west and all conforming to some regular system of interment. About half of the skeletons were found in a prone position, the others being flexed. In the majority of cases they were partially encased in hard, calcareous material that united very closely with the bones. A discouraging feature here was the almost total absence of accompaniments by which I might have been able to judge the age or degree of culture represented. Even the grave markers were absent in every case, a characteristic not heretofore found by me in the cemeteries of either the Oak Grove People or the Canaliño.

Not one bead was found with these skeletons. In six instances large sea shells, usually those of the abalone, were beneath the chins of the individuals, and in one case a medium-sized pestle stood in the grave. That was the extent of the finds. In fact, the only indication of burial customs, aside from the rigid adherence to a set rule for the orientation of the body, was the placing of the great shells at the mouths of the dead, perhaps with an idea of offering post mortem repasts.

When I stopped work in this field I was floundering in conjectures as to its true significance, and even as to the culture that it represented. At a much later period I secured the evidence of superimposed deposits, some of which showed conditions identical to those just described. From this evidence and from the results of comparative study of the anthropometrical features involved, I became convinced that here, as well as at Campbell No. 1, were typical examples of the sites of a second or intermediate cultural group, which I finally called the "Hunting People." The absence of hut sites indicated that, if huts existed, they were of a most flimsy and transient nature.

The smaller cemetery, which I encountered earlier, probably calls for further comment, although I admit that I am far from satisfied as to its true meaning. It has, however, occurred to me that if a deadly epidemic had attacked this people, and left them with numerous bodies, horribly distorted by the final death

agonies, and the necessity of disposing of these at once as a sanitary measure, they might have been interred as they were, in the place where they died and without the accustomed formalities.

The presence of a metate of a more ancient type upon the surface of the site also calls for comment. Its presence could be accounted for in various ways. A member of the Hunting People, who needed a new hearth stone, might have carried it in from a near hillside, or a farmer might have weighted his disk or harrow with this artifact on a neighboring hill, and later, finding it too heavy on this mellow field, might have discarded it.

### CAMPBELL No. 3

This site is located near the eastern border of Cavaletto Estero, a long arm of the sea, which breaks through the cliffs that bound the ocean side of the Campbell ranch; it can not be classed as belonging to the Goleta Slough group, although it was separated from the latter by no great distance. It occupies the crest of a small swell of land, well within the private grounds of the Campbell estate, and is about one-third of a mile inland from the low cliffs that overlook the sea. On April 22, 1925, a limited survey of the vicinity brought out the following details.

The site proper is nearly circular in outline and about four hundred and fifty feet in diameter. The center rises slightly in a built-up mound whose crest is about six feet above the general level of the surrounding surface. Over the entire area was a dense accumulation of camp-site refuse, its black "greasy" soil and shell debris standing out in sharp contrast to the adjacent, rather barren, hard, brown soil.

There were, on the surface, numbers of fragments of sandstone artifacts, principally pieces of primitive metates, although fragments of vessels of a much higher order of creative genius were not lacking. I also found upon the surface an oval mano, a hammer of tough "old greenstone," a fragment of a slate pipe, a fragment of a flint spear head and a flint planer, showing one convex and two concave cutting edges.

A roadway has cut off a small part of the northern edge of the mound. Otherwise I believe that the site is untouched, except through tree planting and intensive cultivation. A thrifty orchard of young apricot trees occupied the entire mound, exclusive of the portion utilized as a drive.



This Dense Thicket of Willows Occupies the Site Formerly Willows No. 4. A section of the Alameda  
Goleta Slough is in the foreground

PLATE 13



The Car Stands Near the Center of Williams No. 3. The fresh-water spring is in the dense thicket at right of center. An arm of Ancient Goleta Slough once occupied the foreground

A thin deposit of camp refuse encircles the original village site with a belt varying from seventy-five to ninety feet in width. This material has been gradually working down and out from the mound, as cultivation has progressed, indicating that at one time the site was much higher than at present.

A small pit was put down near the exact center of the location. This had reached a depth of only twenty-four inches when my work on this site was interrupted, before I was able to obtain any definite information as to the problems it presented.

(54) CORONA DEL MAR

Besides portions of the elsewhere described sites known as Campbell No. 1 and Williams No. 4, the Corona del Mar ranch, owned by the Bishop estate, contains at least two other Indian settlement sites.

One occupies the crest of a small, abrupt-sided mound that lies between the Coast Highway and the Southern Pacific Railway, to the west of the ranch entrance. Remnants of an ancient oak grove still persist here and evidences of the former presence of the Oak Grove People are scattered upon the surface. A few small pits, driven to the subsoil, confirmed my conjecture that a village of this people had once been located here.

(67) CORONA No. 2

Nearly two miles north of the above described site, where the flat valley land of the ranch ends abruptly against the precipitous side of the foothills, there is a spring, clustered about which and sheltered by a heavy forest of oak, there was once a small village. I could find nothing here that would definitely determine the culture, but feel fairly sure that it belonged to the first.

(55) WILLIAMS No. 4

Elsewhere we have summarized the results of our explorations at three sites that lie within the boundaries of the Williams fruit farm. A fourth is assigned to the same holding, although it is only partly located on the farm.

At the western boundary of the former great Goleta Slough is a thick growth of large willows, underbrush and vines. (See Plate No. 12.) This thicket has been nearly all cleared from the Williams side of the line, disclosing dense beds of camp

refuse only slightly above the former level of the slough. On the west side of the line, the portion resting upon the Corona del Mar ranch is still uncleared. In the midst of this jungle is a powerful spring that furnishes a large part of the water supply of the ranch. To the southwest of this spring there still persists a strip of tule-set swamp land that has not been silted in.

There can be little doubt that, beneath the jungle-like wilderness of willows, there rests an undisturbed camp site of the Canaliño at the period of his highest development, for I found his artifacts in the cleared portions of the location. There were also a few fragments of human bones, although not enough to give conclusive anthropometrical data.

(56) WILLIAMS No. 3

This site is in the western part of the Williams fruit tract, about as far to the west of the location termed Williams No. 2 as the latter is from Williams No. 1. In appearance, it is one of the most striking examples of a former village site in the vicinity. (See Plate No. 13.) A small rounded knob rises quite abruptly from the northern rim of the Goleta Slough, which was formerly of greater extent, but is now almost entirely silted in to a wide extent about the knoll. The crest of the knoll is probably twelve feet above these new-made flats, now planted to fields of asparagus. The elevation is about three hundred feet long, north and south, by two hundred and thirty feet wide at the widest part, and is thickly strewn with fragmentary shells, which, after a heavy rain, give an almost white effect to the surface. On the eastern half is an old walnut grove, while the western part is covered by a young apricot orchard.

A spring that was amply sufficient to supply the demands of the former villagers is located near the southwestern foot of the rise. Many efforts to fill and choke this water hole have so far failed. It is at present thickly covered with a rank growth of vegetation. Within very recent times a great growth of tules extended outward from this spring but these have been entirely eliminated.

A series of forty-six deep trenches, sunk at every favorable point, failed to reveal with certainty either the cemetery, the "temescal," or the hut circles. There were, however, several interesting disclosures. One was that to an average depth of

twenty-four inches, black, "greasy" soil, thickly set with fragments of shells, principally those of the mussel, covers the entire site. Within this stratum are frequently encountered fragmentary artifacts that unquestionably belong to the third, or Canaliño, culture. I also found here fragments of a human skeleton which had been unearthed and reburied by a crew that were laying a water main. I sought industriously in the immediate neighborhood for other burials but to no avail.

The above described black stratum rests upon what appears to be a hard clay subsoil that had been much eroded previous to the laying down of the superimposed blanket of camp refuse. By trenching into this supposed subsoil, I found that it was only a few inches thick, and that beneath it was another layer of camp debris about eight inches thick. This latter deposit instead of being mixed with the sooty "Indian soil," bore a heavy content of brownish clay. The massive shells which it contained were far less fragmentary, although they were chalky with age. The artifacts imbedded in this stratum were confined to three classes,—manos, of which over one hundred were found, metates and crude hammers. It appears certain that this sub-stratum was the result of a long residence here by the people of the first culture.

At the time of this earliest settlement, I believe that this knoll was an island, entirely surrounded by the slough. After its abandonment by the Oak Grove People, soil brought down by floods united it with the adjacent land to the north and covered the ancient refuse with detritus. The later third culture residents probably had no idea that it had been occupied previous to their arrival. The first village was of less extent than the last. It is unfortunate that the cemeteries were not located, for they would have aided in solving the problem. We probably have here one of those rare instances where the burial plot was located at a distance from the village; in this case, only chance could reveal its location.

(57) WILLIAMS No. 2

Williams No. 2 is located in the very heart of the Williams fruit and vegetable ranch, on the western border of a fresh water marsh, directly west across this marsh from the site called Williams No. 1, and separated from it by several hundred yards.

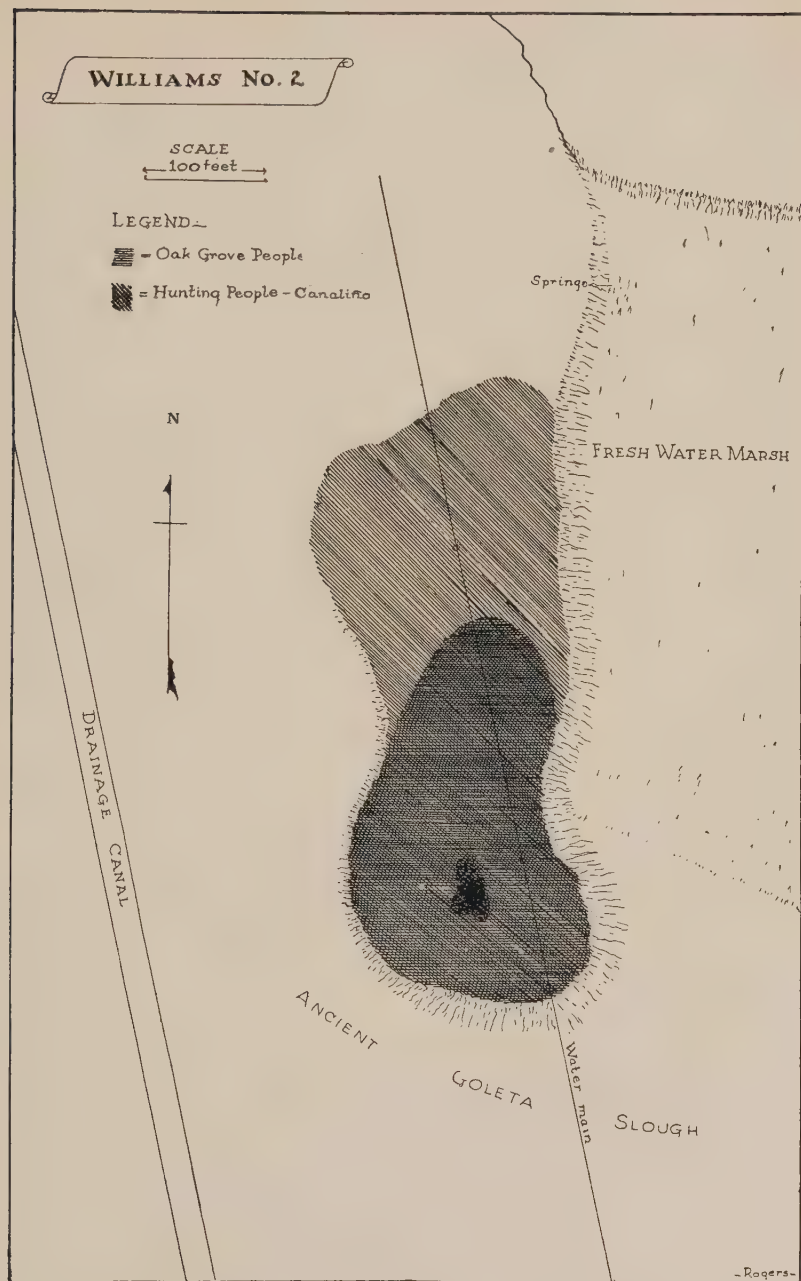
About the same distance to the west of Williams No. 2 is Williams No. 3.

The site, now set to a thriving young apricot orchard, occupies the entire surface of a long, low, narrow swell of land which separates the above-mentioned swale from the larger extension of the estero. This estero formerly came to the borders of the village and nearly enclosed it, only a narrow ridge of firm earth connecting the location with the oak-clad hills to the north.

Over the entire surface of this tongue of land, some six hundred feet long, north and south, by two hundred and forty feet in breadth at the widest part, is strewn a mass of intensely black loam, very mellow and of an undescribable "greasy" texture, with a heavy admixture of shell refuse, principally fragmentary but containing a few perfect specimens. This unmistakable evidence of prehistoric occupancy is in striking contrast with the surrounding flats, once a treacherous tule swamp but now a well cultivated area, completely reclaimed by the encroaching yellowish-gray silt from the bordering uplands.

Owing to years of extensive cultivation, the surface of the site offers few clues from which one may positively reconstruct a history of the former village. The spring that supplied water for domestic needs of the old village may still be found trickling from a steep bank, a short distance to the northeast of the site. Another significant item is the presence upon the surface, among the debris of much later origin, of several well-worn oval manos, or hand-stones. One of these manos had upon its aged surface, on each side, small cavities of more recent origin. Apparently an Indian of the later days had by chance used a grinding stone of the Oak Grove People as an anvil in the creation of his artifacts.

The site has long been known to the employees of the ranch for the number and quality of the artifacts that have from time to time been exposed by cultivation and tree planting. Among these finds were well-wrought stone bowls and flint weapons of a high order of workmanship. These objects I have been permitted to study and a few have been presented to the Museum. The various locations from which these came were pointed out approximately and this aided materially in locating the points of greatest interest.



MAP No. 19



During the month of May, 1925, a thorough exploration was made at this site. A series of trenches driven through the very heart of the site disclosed a remarkably uniform record of occupancy by at least two distinct peoples.

To an average depth of twenty inches I found the typical sooty black deposit, universally dubbed "Indian soil." The upper six inches of this material, which has been subjected to long years of intensive cultivation, necessarily contained little of interest. From this barren stratum down to the twenty inch level, the same material was found, but lying *in situ*, revealing the entire story of its deposition. Perfectly laminated structures of refuse revealed the source of the food supply of this people. Great accumulations of shellfish, chiefly of the clam family, occupied certain areas and levels to the almost total exclusion of other debris. In other locations I came upon almost solid masses of fish scales, evidently where the fish were prepared for repasts. Other remains, found in only slightly less profusion, were the bones of whale, porpoise, seal and fish, and the claws of crabs and crayfish.

In this stratum I found a few artifacts that conformed exactly to the degree of advancement indicated by the refuse heap itself. These included sub-orbicular and hemispherical bowls of sandstone, the majority of which had been discarded on account of some imperfection. A few of these were intact; a few others, though somewhat broken, showed by the well-worn rounded angles of the fractures that they had continued to be used. An occasional arrowhead of exquisite design and finish, and scattered personal adornments were easily recognized as belonging to the later Canaliño.

Occasionally I encountered sudden changes in the contour and general structure of the stratification. Refuse of a coarser texture appeared to conform to a slope that could hardly have been determined by chance. Following the borders of this slope, I soon discovered that it was concave-circular in contour. When completely uncovered, it developed into a perfect circle, usually between twelve and fifteen feet in diameter. The enclosed area, upon being cleared, showed a hard, level platform of very fine material, but no content of coarse debris. Immediately above this hard platform, there was either a stratum of very coarse refuse or the customary black accumulation. Outside this was

the swelling circle of debris that sloped inward from every direction and had no underlying firm platform.

From this description my readers can reconstruct for themselves the picture of an Indian hut that had once stood in this place. From this hut a heap of food refuse was constantly being thrown out, until it formed an encircling barricade. These ruined hut-sites were numerous here, the floors being at different heights, telling plainly of the different periods in which they had functioned.

Of almost startling significance was another development from this trenching, which gave explicit data upon a phase of the sequence of occupations that I had long suspected, but whose details I had been unable to secure. At an average depth of twenty inches below the surface, the above mentioned black debris of comparatively recent origin came to an abrupt end. Throughout the northern half of the site, it rested upon the firm, brownish detritus from the adjoining mountains, which constituted the original surface of the ground. Over the southern half of the location, I found a different situation. Here, after passing through the recent black stratum, I entered a formation that in no manner conformed to, or mingled with it; it was a very hard, stubborn, brownish soil that appeared originally to have been a combination of clay, ashes and other camp refuse that had been frequently subjected to torrential storms which had eventually converted all to a consistency approximating that of conglomerate. This stratum was uniformly from ten to twelve inches thick, and had imbedded in it, besides the food refuse, not a few examples of oval manos, and fragments of oval metates, far advanced in disintegration. There were also a few flint flakes, their chipped edges showing that they had been made to serve the purpose either of knife, scraper or plane.

This formation seemed of special significance. Hence considerable areas of it were denuded of the superimposed black refuse that appeared so alien to it, and the new surface swept clean. I now obtained insight into the sequence of events that had brought about the present conditions.

In ancient times a race of people with whom we have now become familiar under the name of the Oak Grove People, had occupied the low spit that at that time extended into

the almost impassable estero. They had been subjected to repeated severe storms that had converted their village into a sea of mud, into which sank or was trampled their camp refuse. These conditions prevailed over a considerable length of time and then the site was abandoned. For another long period, it stood unoccupied; the frequent storms or overflows meanwhile scored the surface with gullies, and clumps of vegetation appeared. In the course of time there came other people and other modes of living, and a changed climate. They left a new blanket of debris which filled in the gullies and other inequalities that had marked the site of the ancient settlement, and smothered the clumps of vegetation beneath its accumulations, producing the nonconformity which had aroused my curiosity.

The residential section having yielded me so much of interest, I now turned expectantly to the southern brow of the knoll, which I had long previously decided upon as the logical location of the cemetery. The site dropped gently away in every direction except towards the north, and had an unobstructed view of the rising and setting sun, and of the mountains. These characteristic conditions would have led me to investigate here, even had there been no suggestive indications upon the surface of the soil. Fortunately these, too, were in evidence and with absolute assurance I opened a trench that ultimately reached a length of fifty feet, north and south; at right angles to it, I drove laterals only slightly less in extent.

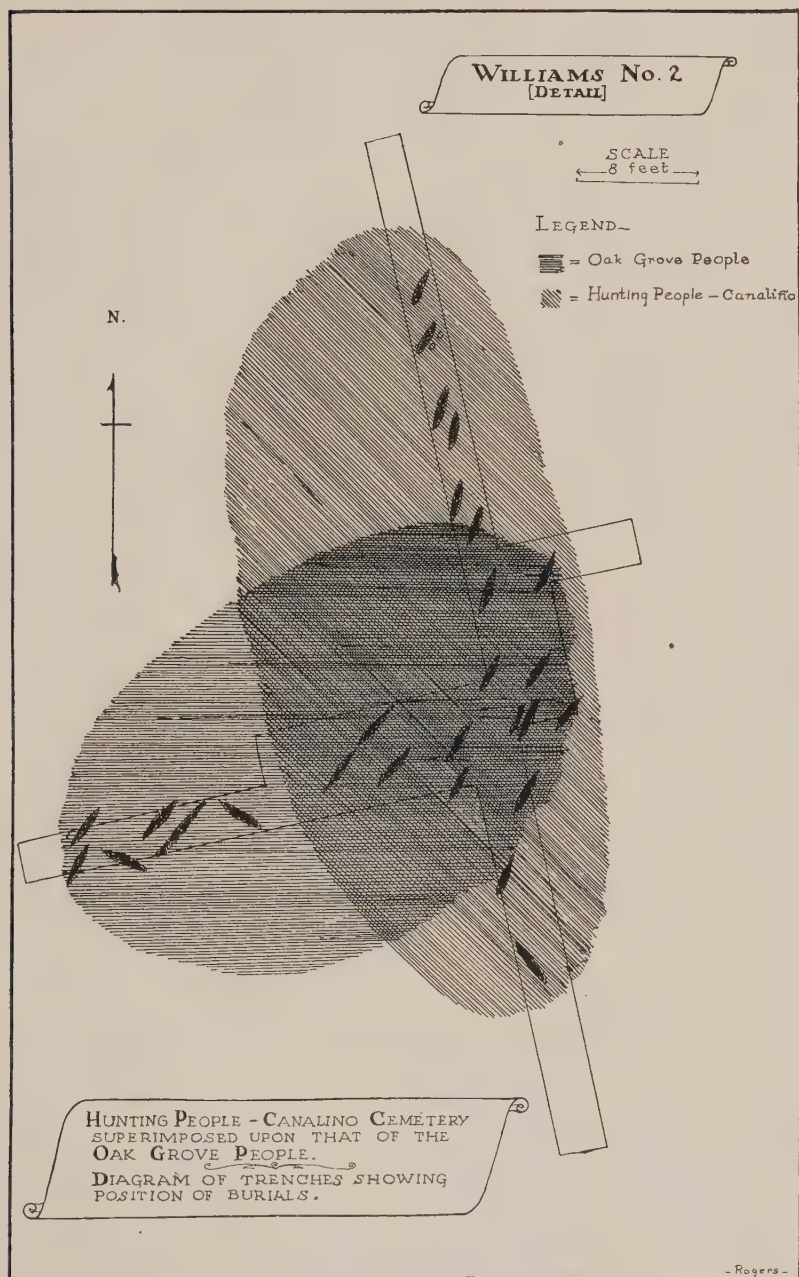
Within the first few minutes of this trenching, I had abundant proof that I was in the midst of a Canaliño burial plot. Human bones, lying approximately in the natural position, were encountered. Proceeding cautiously, I laid these entirely bare and even after this lapse of time, I can recall the feeling of absolute incredulity that swept over me when I realized the extraordinary condition that lay before me. Articulated with the *right* scapula was a *left* humerus, and with the *left* scapula a *right* humerus. The radius and ulna were, in each instance, in correct position. For the time being, no effort of mental gymnastics shed light upon the enigma.

Two days more sufficed to uncover six other skeletons, and in every case but one, there was some discrepancy in the anatomical arrangement, sometimes to the extent of several bones.

In the case of one otherwise perfectly assembled skeleton, the clavicles were turned end for end. By this time I was lost in a haze of conjecture. But the total absence of noteworthy accompaniments gave me a hint as to the possible solution. I combed the country side for old residents who might know of early relic hunters. At last one was found who recalled that a character of the early days, one Francisco Leyva, popularly known as "Chico," had often visited the spot. Further search found an aged Spaniard who had once accompanied Chico on an expedition. This man recalled that Leyva was very conscientious when he opened a grave, disturbing the skeleton as little as possible, and always replacing the bones which he had found it necessary to remove exactly as he had found them,—according to his light. Poor Chico! His intentions were good, but he sometimes articulated a right tibia with a left femur, and he gave me two days of galling uncertainty. Since that time the contrast in the methods employed by the devastating Bowers and the conscientious Leyva, in the wholesale looting of primitive cemeteries, have enabled me to ascribe the ruin I encounter to one or the other.

The trenching in this place was carried only to a degree that would determine the important features. One of these was the tendency to uniformity in the orientation of the skeletons. Of the eighteen that were exposed, sixteen were lying north-northeast by south-southwest; two lay at right angles to this direction. In the majority of cases, the head was toward the north. All were flexed and nearly all lay face down; a few lay on one side or the other.

In continuing the excavation beyond the upper stratum I was confronted by unmistakable evidence of two very distinct periods and cultures. One class of burial was found in the upper, black, mellow soil. Almost every grave here had been rifled by Leyva of nearly everything but the skeleton. This set of burials belonged to the cultural era of the Canaliño, and also perhaps included a period of Hunting People occupancy. In determining the presence of the latter people, I had to depend upon skeletal evidence rather than upon the artifacts disclosed, as examples of the latter were very few in number. In no case did these graves extend much below the black, loose soil of the later settlement. In a few cases, the hard lower stratum



MAP No. 20



had been hollowed out somewhat, but in each case the burial had been entirely within the black soil.

There were, however, in certain parts of the excavation, places where the lower stratum displayed groups of stones imbedded in the surface. These clusters were carefully arranged, and sometimes reached a size that might well be termed a platform. Upon investigation, these were found to consist of entire, "killed," or fragmentary, metates of an ancient type, all far advanced in disintegration. Besides these artifacts, there were present in the structures numbers of ancient manos and a few unshaped boulders and stone slabs. None of these clusters had ever been disturbed, Leyva evidently considering them beneath his notice, or possibly not recognizing their significance.

Beneath each aggregation of stones lay the faint traces of ancient burials, too fragmentary to preserve. In no case was black soil present, either in the grave or about the under-surface of the stones. In fact, it is evident that these burials were in place long before the black soil was superimposed. It is also equally evident that for a long period these grave markers had been exposed upon the surface, protecting this spot from the erosion that cut down the surrounding soil. This elevation would naturally attract later arrivals as a desirable location for their cemetery, hence the superposition of the two burial plots. However, the bounds of the two plots do not exactly coincide, although they are of nearly equal extent; the cemetery of the Oak Grove People was elliptical in outline, and extended in a northeast and southwest direction, while that of the Hunting People-Canaliño, more elongate in contour, extended almost due north and south.

I have no doubt that traces of the semi-subterranean huts of the Oak Grove People could be disclosed by careful trenching here, although I did not discover any in my explorations. I also sought, industriously but without success, for the location of the former dance floor and temescal, although these must surely have been established here. Another search which involved a great deal of manual labor ended in disappointment. By means of fifteen closely adjacent trenches, I tried to locate a hidden cache of metates to the northwest of the village proper. Workmen are each season striking these objects with their plows

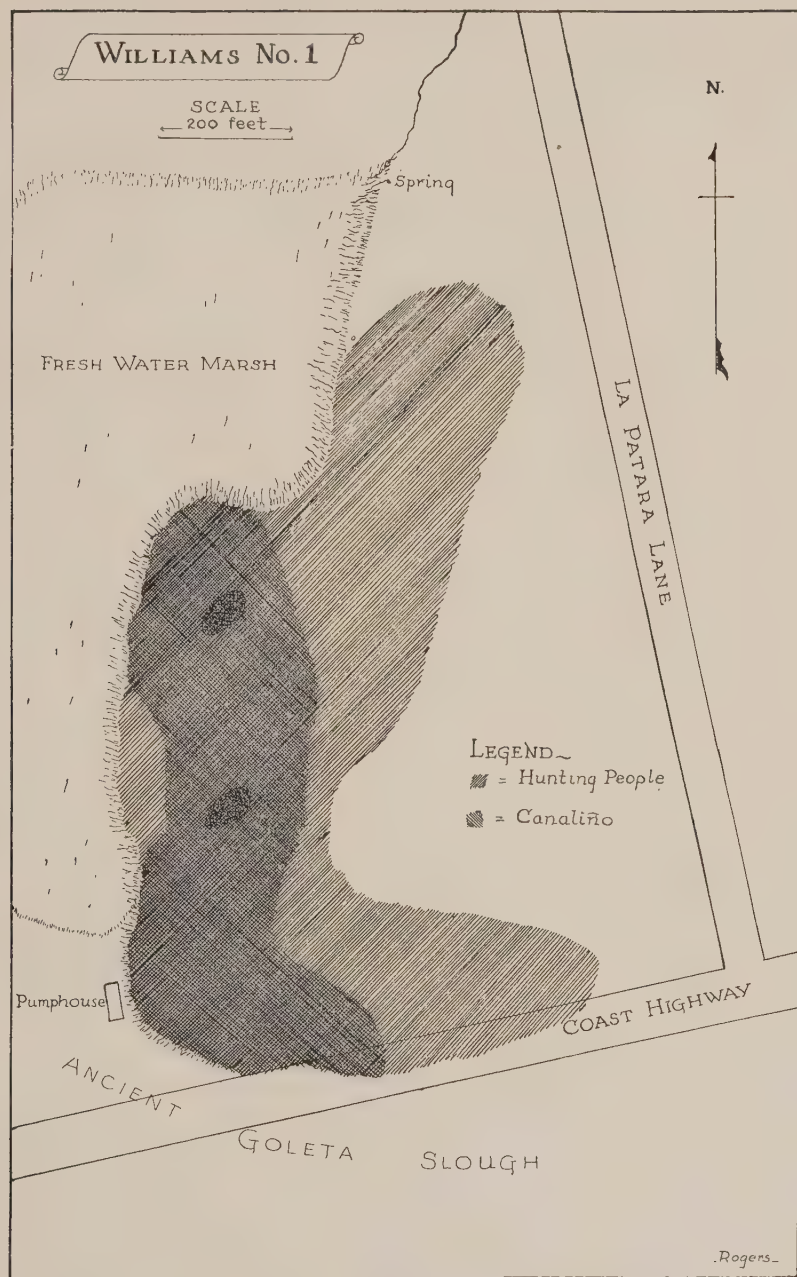
and bringing fragments to light. These men located the spot for me approximately, but I failed to find it.

(58) WILLIAMS No. 1

Lying within the angle formed by the Coast Highway and La Patara Lane (which leads at right angles from the main thoroughfare), one-half mile west of the cross-road village of La Patara, is the commercial fruit and vegetable ranch of James G. Williams. Upon this intensively cultivated tract are four Indian village sites that once formed a part of the great circle of such settlements that occupied the former boundaries of Goleta Slough. These sites vary in size, age and significance, but each is well worthy of the careful study of the archæologist. The site under discussion I will call Williams No. 1.

A small fringe of the original site which abuts on the Coast Highway at a point forty rods west of La Patara Lane, has probably been destroyed by road-grading activities. The major portion, however, is still intact and covers a large extent of land. The portion of the site adjoining the highway is very low, only slightly above the level of the slough. Here is to be found a mass of camp debris, capped by a noticeable accumulation of asphalt nodules. Several decades ago, a spur of the first valley railroad had its terminus at this point, for the service of the now all but forgotten Goleta Asphalt Mine. All trace of this spur track has been obliterated by years of cultivation, but the tradition of its functions and the scatterings from its overloaded flat cars persist. This portion of the former site is now thickly set to a commercial plantation of rhubarb and artichokes.

Three hundred feet to the north of the highway, the ground rises slightly into a low ridge which borders the eastern edge of a fresh-water marsh, the expansion of a mountain-bred stream which in past times entered the slough at this point. There can be little doubt that, in Indian days, each recurrent tide washed the borders of the village which we are discussing, and it is equally probable that tule-bordered waterways led from it to the open sea, affording passage for the sea-going canoes for which the settlements about this slough were famous. Through cultivation and the erosion of the higher lands to the north, this great expanse of former estero is now largely silted



MAP No. 21



in and tracts of it are devoted to agriculture. This filling-in process has, in the course of time, choked the outlet of the fresh water stream that used to debouch here and has formed the present marsh, which originally was probably an arm of the slough.

Along the border of this southern arm for a total distance exceeding twelve hundred feet, with an average width of three hundred feet, is one of the largest sites which I have found in this vicinity. Over this expanse is distributed a prodigious amount of camp-site debris, reaching a depth of at least four feet over a large part of its area. Sea shells form a very large part of this refuse, in many places almost to the exclusion of other material. A noticeably large percentage of these shells belong to the oyster and pecten families.

Many other indications of the former presence here of primitive inhabitants have come to light in recent years, during the process of cultivation or other activities. Splendid examples of Indian handicraft are being thrown out at infrequent intervals, as cultivation increases in depth. Not a few of these relics have been preserved by employees of the ranch, among these the Messrs. George and Lawrence Shaw, who allowed me to examine a choice series of objects from this site for which I could not otherwise have obtained data.

A water line extends the entire length of the exposure. It is reported that when this was installed, several years ago, several skeletons were unearthed, and that when the peach and apricot trees that now cover the higher land were being planted, traces of burials were of frequent occurrence. During the months of April and May, 1925, I was permitted to explore the vicinity.

One outstanding feature was the unmistakable evidence of the work of former excavators. Near the center of that portion of the site that flanks the marsh, a slight eminence encroaches somewhat upon the otherwise fairly straight border of the slough. Upon the crest of this knoll was formerly located the chief cemetery. This I found to be in ruins; unbelievable quantities of broken human skeletons, heaped carelessly in the filled-in trenches, testified to activities of relic hunters. Old settlers stated that, in the late seventies of the last century, Stephen Bowers had devoted several days to this site. In a few graves

which had not been completely destroyed, several partial skeletons were found *in situ*. A few artifacts had also been overlooked.

In scattered, isolated localities, I found a few undisturbed burials with their accompaniments. These in each case proved of value in the study of the village. Of special interest was the finding of the grave of a well developed male adult, of a physical type entirely different from any that I have found before or since. (See table of comparative anthropometrical indices, p. 432.) The man was of the long-headed, low-browed type, with a broad, flat nose and a generally sinister cast of physiognomy, in striking contrast to those among whom he was found. The skeleton lay prone, in contrast with the majority of burials found in this region. It was not found in the populous cemetery, but at the fringe of a prominent refuse heap. The weapons accompanying the skeleton were of a distinct type, of black obsidian and deeply serrate. The personal adornments were alien to this region, consisting of bear teeth and eagle claws, with no trace of the asphalt attachments almost invariably present in some form among our people. I believe that this skeleton and its accompaniments were those of a wanderer who had died in a strange land and had been accorded an honorable burial by his late hosts.

Among the scattered burials encountered were also a few of the older people, the Hunting People. In fact, the entire lower stratum of the camp debris and the more widely extended portions of the village bore evidence of an extended occupancy by this people. Great heaps of the shells of the giant Pismo clam, a favorite delicacy of the Hunting People, the abundance of bones of the larger land mammals and the absence of fish remains in the lower levels were all indicative of the presence of this race.

On the other hand, the more pronounced refuse heaps were invariably capped by material of a different nature. Fish bones and scales appeared in great quantities, and shell fish in greater variety; the majority of the latter were oysters, mussels and pectens, with a sprinkling of the various clams. Above all, in this layer appeared the artifacts of a race of high artistic ideals, as contrasted with the material found at lower levels, where utility seemed to have been the only requirement.

To summarize the results of our investigations here, I found no trace to indicate that the Oak Grove People had ever set foot upon this site. In fact, it is quite probable that, during their time, this particular part of the now firm land was a part of the great Goleta estero. In later time, detritus from the higher ground, deposited by flood and wind, had formed a low flat ridge near the mouth of the mountain stream, where it entered the lagoon. Here was established one of the extensive camps of the Hunting People, soon after their first appearance in the valley. These ran the course of their allotted time, and a portion of their village site was later occupied by the Canaliño, who were still in possession at the time of the advent of the whites, as is shown by the presence of a few glass beads.

(59) EAST OF WILLIAMS

One-fourth of a mile east of the site designated as Williams No. 1, in the midst of a cultivated field that borders an arm of the ancient Goleta Slough, is a small area that displays upon its surface quantities of shell refuse. As no excavations were undertaken here, the period of culture represented remains problematical.

(60) LIBBEY

Skirting the western limits of the little settlement of La Patara, from the north side of the Coast Highway to many rods north of the Southern Pacific Railroad, is a very extensive former village site, approximately one hundred rods long by thirty rods wide. Over the entire surface of this tract may be seen almost unbelievable quantities of shell debris which, in the railroad cut, display a depth of thirty inches. Bits of bone and many flint chips are in evidence everywhere among the masses of sea shells. The owner of the tract was unwilling to permit any exploration, hence the details of its division and its past history remain unknown.

(61) STOW

Upon the Stow ranch to the northwest of the town of Goleta are abundant superficial evidences of a prominent Canaliño village.

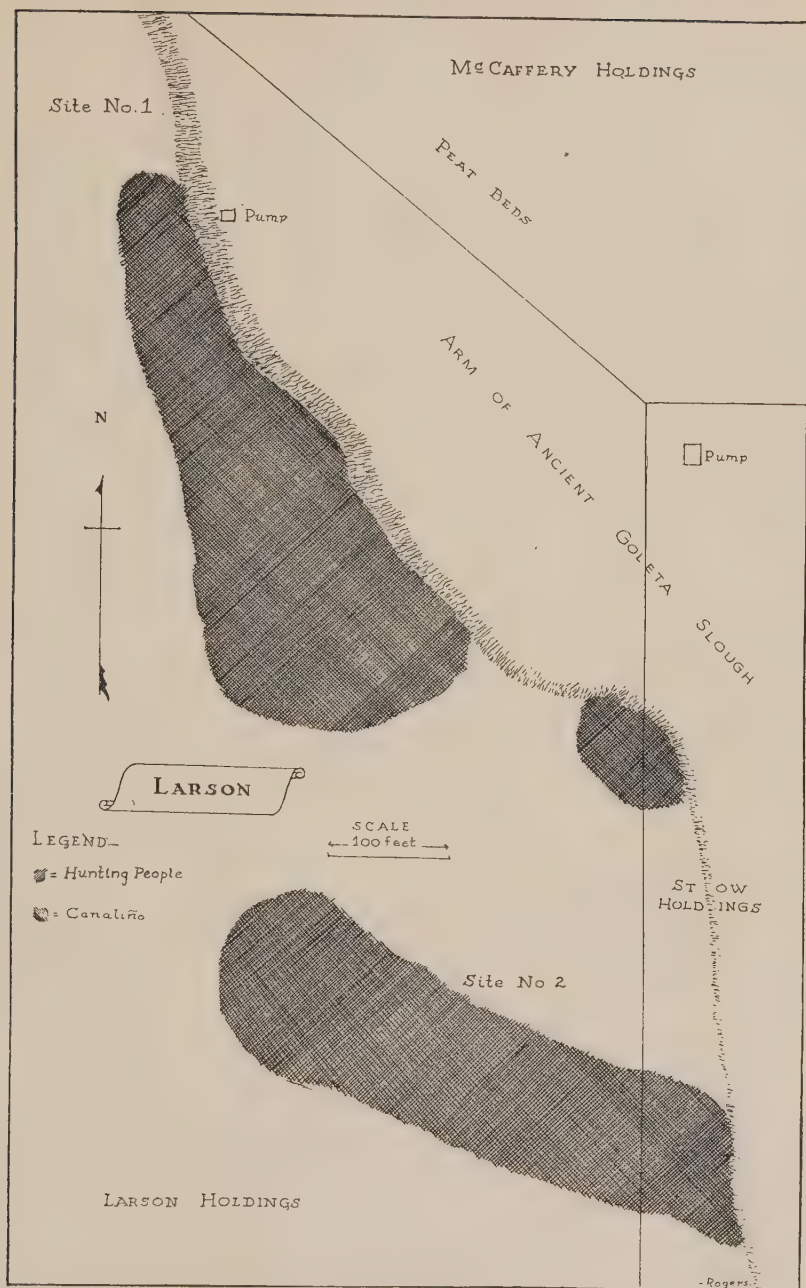
## (62) (63) LARSON NO. 1 AND NO. 2

There are two distinct deposits of camp refuse upon the estate of Mr. Louis Larson, located to the northwest of La Patara. They are probably subdivisions of one settlement, although they are separated by at least two hundred feet of territory that was never occupied. They rested upon the western border of the most northerly extension of the ancient Goleta Slough. After a rain has washed the debris, the shell refuse fairly whitens the surface.

The northernmost of these two sections, No. 1, reaches a length of five hundred feet north and south, with a width of two hundred and twenty-five feet at the southern end, tapering to no more than fifty feet wide at the northern end. Over this entire area, the refuse reaches to an average depth of twenty-seven inches. Section No. 2 extends in a northwest and south-east direction. It is four hundred and fifty feet in length, with an average width of one hundred and forty feet. The depth of the refuse appears to average slightly less than that of Section No. 1, not extending below the twenty-three inch level in any place that I investigated.

In the past, numbers of artifacts have been taken from the surface of these two sites, but, after years of cultivation, these objects are much less common, although there were recently found a fine basket-mortar, two especially fine, polished, granite manos, and a small tapered pestle. My explorations yielded mainly negative results, as I was unable to locate any of the principal divisions of the former village. The few artifacts salvaged from the trenches at various depths, coupled with the evidence from the strata of refuse, led me to believe that there had been a long and continuous residence there of the Canaliño, preceded by a long occupancy by the Hunting People. The Oak Grove People have also left a record of their presence, although their status, whether that of residents or casual visitors, remains doubtful. Throughout all these occupations, the place had been a prominent one in the manufacture of flint weapons, as is attested by the great numbers of flint chips that were found at all depths.

One hundred and fifty feet to the east of the southern extremity of site No. 1 is a third accumulation of camp refuse.



MAP No. 22



This is a very limited area, being no more than one hundred feet long by sixty feet wide.

(64) McCaffery

Eighty rods northwest of the Larson rancheria, site No. 1, and about thirty rods north of the Larson north line, a small clay dome rises slightly above the alluvial flat that borders the eastern side of the creek. The crest of this mound is thickly set with camp refuse. At its eastern base this debris covers a portion of the low flat ground for a distance of two hundred feet north and south and eighty feet in width. The entire village probably covered an area of four hundred feet east and west, by two hundred feet in the opposite direction. This is the most northerly village found of those that formerly fringed the great prehistoric Goleta Slough. Its isolation and the fact of its being intensively cultivated combine to make excavations here impracticable.

(65) Sexton Hill

About one and a half miles north of La Patara, a short distance to the east of the road, rises a high, steep-sided hill. This was once the seat of a group of Oak Grove People. The camp refuse is still traceable, and several manos and metates are scattered about. Remnants of the former oak forest still persist here.

(66) Romo

Nearly three miles north of La Patara, at the southern boundary of the Romo holdings, is a small but highly developed site of the Hunting People. About the farm house and the city residence of Mr. Romo are to be seen several basket-mortars, crude stone bowls and heavy arrowheads that have, from time to time, been plowed out of this location. I could trace nothing that would indicate that either the Oak Grove People or the Canaliño had ever been present here. Several skeletons have been unearthed, but none of these were available for study.

(68) West of Winchester

High on the crest of a lofty foothill to the west of Winchester Canyon and probably two miles from the sea coast,

there is a spring of fresh water. Remnants of an ancient oak grove still persist here, indicating that this hill was formerly heavily forested. Upon its crest are the characteristic accumulations of a settlement of the Oak Grove People. Dozens of manos and fragments of metates, many flint chips and even traces of sea shells still endure.

No excavations were made here as the site at present is almost inaccessible.

(69) WINCHESTER No. 2

This site, in many particulars, very closely resembles that of Winchester No. 1. It occupies the entire crest of the northern extremity of the ridge occupied by the latter site, approximately a quarter of a mile from it. If anything, site No. 2 has a more striking situation, since the land drops away abruptly on all sides, except where the narrow neck to the south connects it with the main ridge. (See plate No. 14.) No fresh water was found anywhere near this location; perhaps springs once welled from the nearby slopes but they have now completely disappeared. Remnants of the oak grove that probably once covered the ridge are still to be seen skirting the northern slope.

A large number of test pits, driven into various parts of this former village, served to develop the most important details of its story. The extreme boundaries of the site now display an elliptical outline some three hundred feet in length, north and south, with a width of about one hundred and forty feet at the widest part. This ellipse coincides almost exactly with the boundaries of the crest at the extremity of the ridge. The entire area is covered, to an average depth of thirty-six inches, with black "Indian soil," characteristic of the first culture. This contained very little of the camp refuse in its original form. The heavier parts of the more massive sea shells were still to be seen, although much decomposed, but little trace was left of the more fragile debris.

Careful search was made for the sunken dwellings, which I supposed would resemble those of the adjoining village, but none were found. During these investigations, many of the primitive manos, metates and hammers were found, but not one fragment of artifacts of a later development. A unique



The Crest of the Knoll in the Foreground Was Once Occupied by the Village Described Under the Name of Winchester No. 1. Farthest Toward the center, right side of gum trees is the site designated as "West of Winchester."



feature was the presence of great numbers of large flint chips. None, however, showed retouching or use. An elliptically outlined cemetery was located, almost in the center of the site. The longest diameter of this burial plot extended some fifty feet northeast and southwest, while the width was from thirty-five to forty feet. Fourteen skeletons were found in the trial cross-trenches driven through this plot, all fragmentary and encased in a calcareous crust. No artifacts, except crumbling metates and manos, accompanied these remains.

This site is, I believe, an undisturbed example of a place that served for ages as a home for the Oak Grove People.

(70) WINCHESTER No. 1

About eleven miles west of the city of Santa Barbara, the Coast Highway, immediately after crossing the north side of the Southern Pacific railway, also crosses Winchester Canyon. The eastern side of the canyon is bordered by a high, abrupt bluff. Occupying a very striking point at the highest part of the crest of this bluff is the site under discussion. It is located about one-half mile from the sea, about two hundred yards northeast of the overhead railroad crossing.

The site itself is very compact, roughly elliptical in outline, two hundred feet long east and west and one hundred and fifty feet wide. The black, mellow, thoroughly decomposed soil of the former village rises abruptly at the outer borders of the ellipse, in striking contrast with the surrounding surface of brownish clay detritus. Scattered sparsely over the surface may be seen fragments of the more massive varieties of sea shells, flint chips, and an occasional stone hammer.

By sinking trenches, I found that the same formation of thoroughly decomposed camp refuse covered the site continuously to a depth varying from thirty-six to forty-two inches, the heaviest deposit being near the center. Throughout the entire depth, I found no change in texture or content. Fragments of the heavier parts of the more massive sea shells were the only organic remains that had endured in the original form in the great refuse heap. None of the more delicate shells and no traces of bone were found in this discarded refuse. Flint chips, hammers, and oval manos were of fairly frequent occurrence. No vessels were encountered, probably because I failed

definitely to locate the cemetery where these artifacts are commonly found. I did, however, find a few fragmentary human remains near the southern border of the site. These were partially fossilized and covered with a calcareous matrix. These fragments probably indicate the presence of the cemetery in the vicinity. Traces of the stony, calcareous formation which is almost an invariable accompaniment of the deposits left by first culture occupancy were noted along the lower reaches of this heap.

At two points, I unearthed almost unmistakable evidence that partially subterranean, circular structures had existed here; one was approximately twelve feet, the other fourteen feet in diameter. The floor of each had been sunk twenty-four inches below the original surface. If these structures were maintained up to the close of this settlement, which is unlikely, they would have been almost entirely beneath the surface. The encircling walls of clay had, in each case, partially caved in. Thin beds of ashes marked the center of the floor level of each, the ashes of the larger enclosing a circle of small burned stones. Amidst the debris that filled the larger depressions were several small boulders that had evidently once lain on or very near the hut, for I assume from their size and from the absence of charcoal, that these ruins probably represent the remains of dwellings, rather than a sweat house. In fact, no evidence has been found that the ceremony of the "temescal" was known to the People of the Oak Groves. I believe that we have at this site undisturbed remains of a settlement of the people of the first culture. There are no superimposed strata and the site has never been visited by the relic hunter. The spot was the home for centuries of a very primitive race of savages who in the dim past invaded this valley. They lived unchanged to the end of their story, the final chapter of which was closed at such a remote time in the past that the materials of their refuse heap have largely reverted to the condition of mellow soil, and the skeletons of the ancient cemetery are now represented only by scattered fragments of semi-fossilized bones.

There are but two elements lacking to make the picture complete. First, no oak forest now crowns this ridge. As this appears to have been one of the requisites of a village of this people, I feel that I am justified in assuming that in the remote

past there was a forest here, that passed even as the people beneath it passed.

The other item that is lacking is a water supply. At present no water is available for a long distance. There are two suggestions that present themselves in this connection. Either there was, in ancient time, a spring that trickled from the side of the bluff which has long ceased to flow, or else water must have been brought with great labor from the creek, a quarter of a mile to the west, up the face of a high precipitous bluff.

(71) WINCHESTER No. 3

At a point on the coast eleven miles west of Santa Barbara, in the extreme southeastern corner of Tecolote Ranch, a former rancheria occupied a commanding position upon the crest of a prominent headland. (See plate No. 15.) The village was some four hundred feet in length, north and south, by two hundred feet in width; its boundaries coincided with the outline of the southern extremity of the flat-topped mesa that here drops sheer to the ocean beach some seventy feet below. The western side is bounded by the steep eastern wall of Tecolote Canyon, and the eastern by the equally steep bluff bordering the western side of Bell (or Winchester) Canyon.

No indication of camp debris could be found upon the slope bordering the village upon the west, nor any indication that Tecolote Canyon had, in any way, contributed to the village life. The eastern slope, leading down to the floor of Bell Canyon, is one unbroken mass of camp refuse, eloquent of the passage of many feet up and down this thoroughfare to a boat landing. This was in a great estero that formerly skirted the entire eastern side of the village close under the bluff.

This estero is now a place of drifting sand dunes, with no superficial indications of its former nature, but pits driven through the sand soon develop the odoriferous, black, estero mud that lies beneath. This change from treacherous marsh to dune land has taken place within comparatively recent years. Mr. Robert Main, general superintendent of the ranch, informs me that thirty-five years ago he frequently shot wild ducks in the part of the lagoon where now the dunes are highest. He says that, soon after this, a winter freshet had been deflected to the east by some obstruction, cutting the present channel,

and that after this the former estero had gradually filled in.

Within the confines of the ancient village upon the crest of the mesa, the black soil, quite heavily charged with camp refuse, reached to an average depth of thirty inches, the variations in depth being largely traceable to the methods of cultivation recently employed and to erosion due to this cultivation.

The clearing of many trenches here disclosed that the black artificial soil rested directly upon the hard yellow clay of the ancient surface of the promontory. This original surface is cut and slashed by many small gullies, leading in the direction of least resistance. Terrific storms had prevailed here in the early days and erosion had been very great.

Even at that early date, the site had been occupied by man, for I found imbedded in this adhesive, stubborn subsoil, several worn manos and fragments of crumbling metates. I also found the vestiges of two very ancient burials, stretched at length, with no black soil in the graves; these had evidently been laid away before the black soil was formed. These evidences of the former presence of the people of the first culture were very few and were restricted to a small area.

Not far from the center of the site was unmistakable evidence that here had once been located the community dance platform. An elliptical space about one hundred feet in length, extending northeast and southwest, had been entirely cleared of stones and gravel, a thin moraine of this material completely encompassing it. Even to this day, the soil beneath the cultivated stratum is very firm, as though it had been thoroughly tamped. I sought diligently about the center of this compound for traces of the upright beams that once stood there, but without success.

Beginning near the southeastern bounds of the dance platform, at irregular intervals over a wide area, I found burials. The diversity displayed in these interments was at first a very puzzling feature, but a close study of the conditions surrounding each variant eventually led to an explanation that to me at least was satisfactory. Before presenting it, let me describe the conditions more in detail.

Not far from the dance floor and extending in the same general direction, was a compact ellipsoid, thirty-six feet long by twenty-two feet wide, the soil of which to an approximate



The Site of Winchester No. 3 Is Located upon the Crest and Nearest Slope of the High Promontory.  
The middle distance shows the sand-waste now occupying the former estero  
In the foreground is the present estero

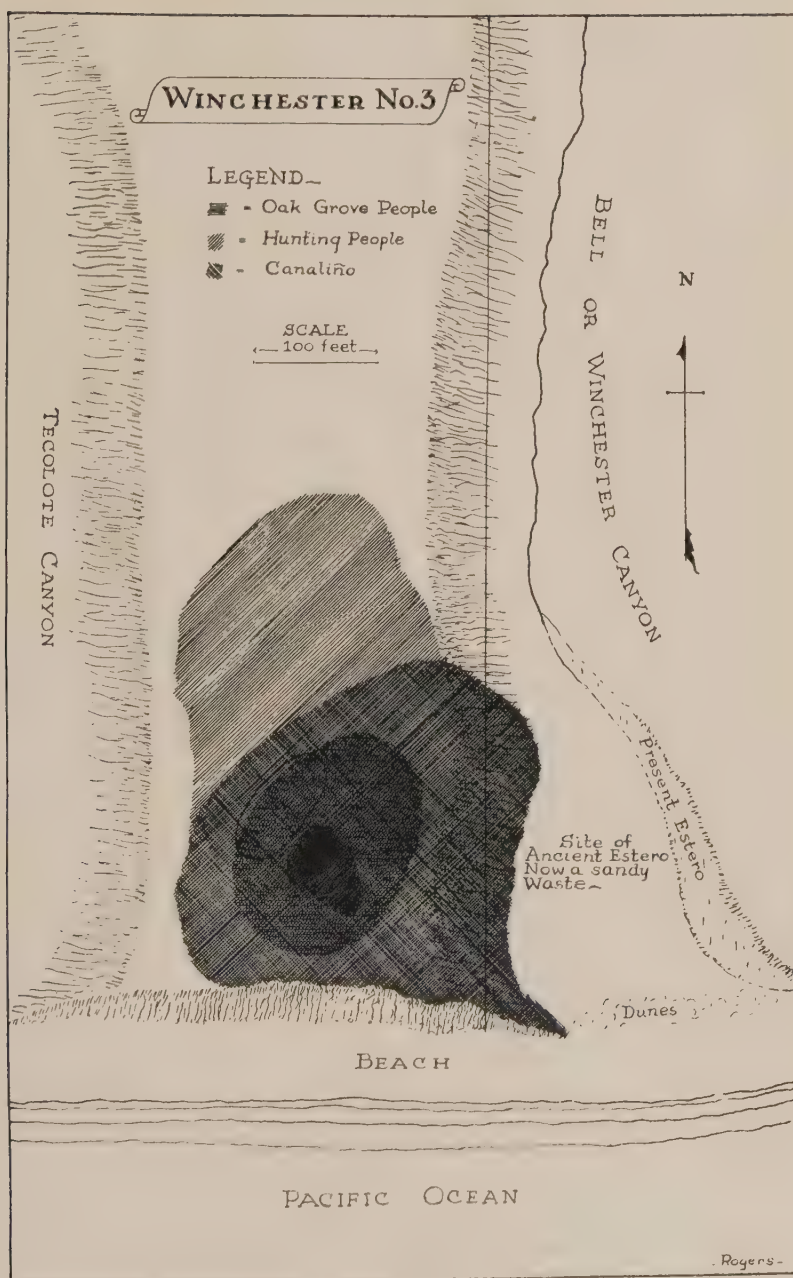
PLATE 16



The Estero Which Separates the Site of Tecolote No. 1 from  
That of Tecolote No. 2



Three Examples of Weapons Imbedded in Skeletal Material.  
Found within the site of Tecolote No. 1



MAP No. 23



depth of thirty inches was very rich and mellow and contained the minimum of food refuse. Within the confines of this plot were examined seventy-five skeletons, laid in almost unbelievable proximity to each other. All were flexed and nearly all lay with face down. Eighty-five percent had the head pointed to the southwest; the remainder were directed to every point of the compass. The bones were in a fair state of preservation, and the crania departed in no way from those of the generally accepted type of the third culture people. Flat stone grave-markers were not uncommon in this plat, and a very common practice was to place from two to five large *Haliotis* shells in the grave of each individual. These shells may well have been the vessels most in use by them, for in only one case did I find a stone vessel. The presence of numbers of finely wrought pestles however would indicate that mortars were in use. Within this congested plot were also found numbers of personal ornaments, weapons and ceremonial objects, all of a high degree of design and finish. In fact everything indicated that this had once been the burial place of the Canaliño. The total absence of objects of white manufacture showed that the Indians had last occupied this site not later than the beginning of the seventeenth century.

Outside of the above-mentioned ellipsoid of thickly massed burials, the graves were more or less scattered, and showed characteristics entirely at variance with those just described. The cranial type of these skeletons was very different, being much shorter and higher than those of the skeletons found in the thickly occupied plot, or of the two ancient skeletons found encased in the clay subsoil. No ornaments or vessels were found with the skeletons, and only a few weapons and crudely made pestles. One of these burials in particular is worthy of detailed description. There was nothing about the skeleton itself to distinguish it from others of the scattered graves. It had, however, above it a massive platform of beach boulders, interspersed with a few crude kitchen utensils, some of which were broken. This structure measured ten by five feet in extent and was from ten to fourteen inches in thickness, and contained almost two cubic yards of stones, from a few ounces to fifty pounds in weight each, all brought by tremendous effort from the beach below. This grave, judging from the evidence of

other sites, must have belonged to the people of the second culture. Other graves of this people were found within the small gullies that had been eroded in the original clay surface before the deposition of the black camp refuse. One of the skeletons was found within the confines of a former fireplace that had occupied one of the gullies.

I believe that the barren clay-topped promontory had early offered a settlement site for a small band of the Oak Grove People, who maintained themselves here for a considerable period of time, in spite of the terrific storms that from time to time converted their village into a sea of mud into which their heavy household utensils sank. After the vanishing of this people, the storms continued to lay tribute upon the site, gullyng and wasting the surface and destroying a large part of the evidence of former occupancy. I can not conceive of an oak forest having been present here at this time, for under those circumstances the erosion would have been to a great extent prevented.

Centuries probably elapsed before the site was again occupied by man, this time by the Hunting People. The era of terrific storms had probably passed, for we find the new people utilizing the small gullies of the old site as fireplaces, some for long periods, for the walls were burned red to a great depth and the beds of ashes had accumulated until they were nearly level with the original surface.

In the course of time, the entire series of gullies became filled with the accumulating camp refuse, although as yet little had been added to the common level of the site. Under these conditions what more natural than that the interments should be made in the easily worked refuse in the gullies? Here, in fact, is where we find the burials of this period; in one case even a former fireplace had been used as a tomb. The narrow and irregularly distributed gullies would under this system of interment form a cemetery of irregularly scattered graves. This, too, was here the case.

In due process the entire mesa became coated with a level blanket of refuse. It is now that we trace the advent of the third and last culture. Whether there was a gradual shading of one people into the other, or whether it was an instance of complete and instantaneous replacement, we can not determine. I am inclined to believe that the latter was the case, basing my

belief largely upon the fact that a well organized and thickly occupied typical Canaliño cemetery was established, beside their dance floor. Had there been a gradual mergence of the two people, through a long period of time, there should have been some indication of this in the gradual changing of burial customs. No evidence of such modifications were found. The burials were either typically of the Canaliño type or just as plainly those of the Hunting People.

I found no trace of the activities of former white excavators; I believe that they have never operated here and have not obscured the story of the site.

(72) (73) (74) (75) **TECOLOTE**

The combined settlement at the mouth of Tecolote Creek, including the two sections arbitrarily designated as Nos. 1 and 2, which cover rather more than the average area of native villages, is unique in some of its features, while in others it resembles the usual village very closely. Divided near the center by Tecolote Creek and its marshy, tule-set estero, it nowhere occupies high ground. The eastern section in particular is but slightly above high tide and probably frequently at the mercy of the winter freshets from the mountain-fed creek. While the convenience to water, fuel, sea-food and building material is evident, it is not so clear why this people chose a site for a permanent village in this low, miasmatic location, with the attendant discomforts of almost daily fog and mist, mosquitoes, and sea winds that sweep unchecked through the throat of the canyon.

Located on either side of the rather extensive, triangular estero that forms the connecting link between Tecolote Creek and the ocean (see plate No. 16), the two sharply defined sections of the village have, as above indicated, been separated under the captions Tecolote No. 1, the section east of the estero, and Tecolote No. 2, that to the west of the marsh.

With a dense growth of willows and tules at their very doors, we might readily imagine that the people of this settlement would have developed the highest type of hut building to be found along the coast. As a matter of fact, the evidence offered by the carefully explored camp site at No. 1 shows traces of domiciles of the most fragile and perishable nature. The

easily accessible channels of fresh water in the lagoon would have furnished ideal docking facilities for the great sea-going canoes, of which they doubtless had several. With the wooded reaches of the mountains, rich in game, rising abruptly at the back, and beach and sea teeming with food at their thresholds, one can easily conceive, in spite of the manifest handicaps mentioned above, a thriving village as having once flourished here.

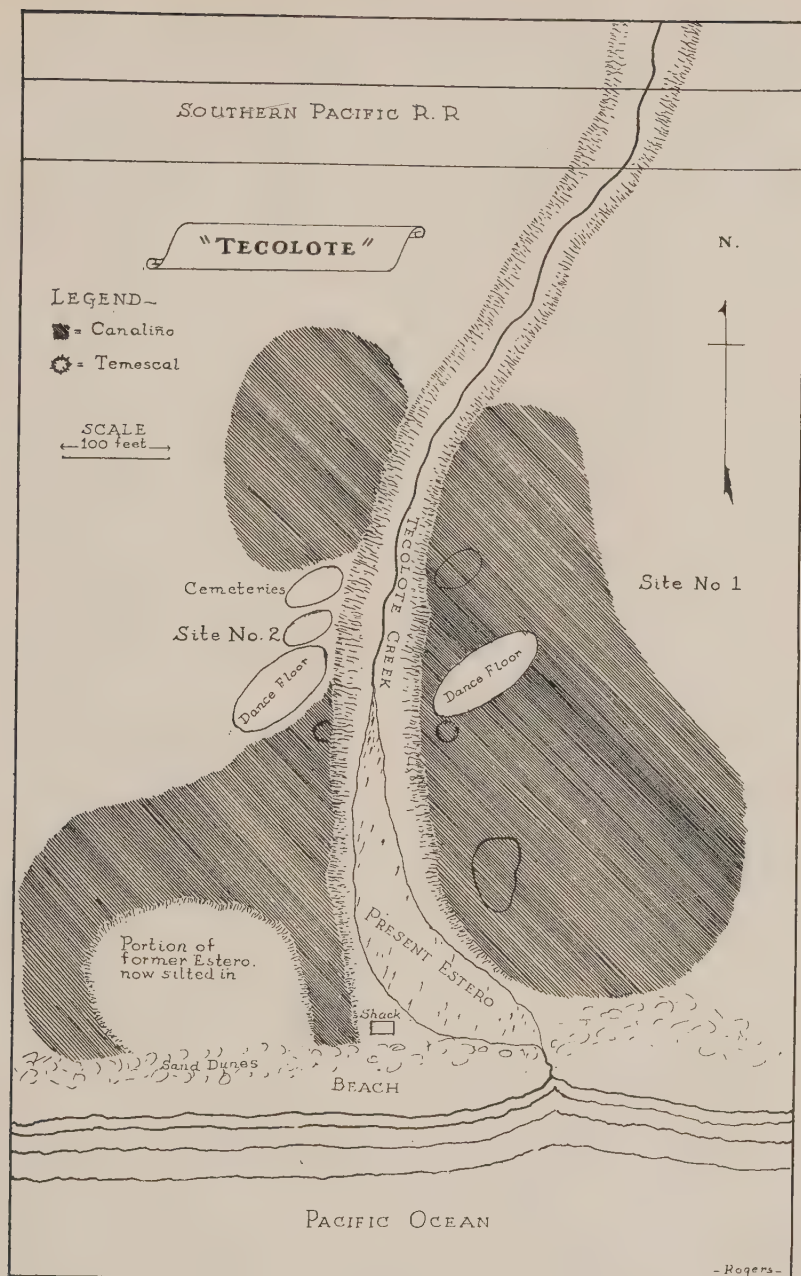
Both sections of this village are situated upon the great Tecolote Ranch, owned by the Bishop estate. This holding is on the Coast Highway, about eleven miles west of the city of Santa Barbara.

#### (72) TECOLOTE No. 1

Tecolote Creek, after following the narrow tortuous channel of the canyon for some distance, formed for itself, at some early period, a rather wide and unrestricted bed, as it approached the ocean. As time went on and the age of heavy floods passed, this same creek, now shrunken and impotent, adjusted itself to a narrow channel near the western border of the alluvial flat land, previously laid down between the widely separated jaws of the canyon, and left quite an extensive strip of low bottom land on the eastern side only slightly elevated above high tide. It was upon this low flat that the section of village designated as Tecolote No. 1 was located.

While the above described low flat, at its widest part east and west, is some five hundred and fifty feet in width, the village appears never to have occupied more than one-half of this width, at the utmost no more than three hundred feet. In its longitudinal extent, north and south, it was about twice this dimension. The western border has been somewhat modified in recent years by occasional freshets that have eroded the banks of the creek, one in the year 1914 exposing several skeletons there. A double row of thickly set cypress has now been planted along the creek bank to prevent further inroads. Low sand dunes near the beach and a growth of willows in the estero that connects the creek with the sea, furnish some protection from the sea storms, but while the village occupied the flat, it must have experienced many violent gales that swept up the canyon mouth.

The entire area of the rancheria has been raised about



MAP No. 24



thirty inches above the original alluvial surface by the accumulation of refuse, incident to the untidy, primitive life of the inhabitants. This debris is of the general nature of all such deposits of the third culture people, the Canaliño. Probably the most striking content is the large percentage of intensely black, "greasy" soil, a substance that refuses to be eliminated after years of cultivation, and imparts an almost indelible stain to all material with which it comes in contact. During the hot, sunny days of spring, it was interesting to note the action of the sunlight upon this material. Over the intensively cultivated, alluvial flat land that had been unoccupied by the Indians, there danced and shimmered a flood of refracted heat waves, while over the black, sooty site of the ancient village not a trace of this refraction could be seen; apparently the black soil absorbed the heat and light perfectly. This phenomenon was especially striking when viewed from the heights of the adjoining mesa, from which the former village site appeared like a phantom black island in the midst of a sea of shimmering light.

Early in the summer of 1926, through the courtesy of Mr. Frank Bishop, I was permitted to make a thorough exploration of this interesting field. I had been able to obtain no information whatever as to the possibilities of this site, beyond the above-mentioned fact of the exposure of burials by a freshet at the edge of the creek, and the rather negative encouragement to be derived from the statement by Mr. Robert Main that Francisco Leyva had once stated, years ago, that he had "dug up everything worth while on the east side of the creek."

I had recourse to the methods of development usual where all superficial indications have been destroyed by years of intensive cultivation, viz., the sinking of a system of test trenches calculated to solve most readily the problems presented by the site.

One disappointing feature was my inability to determine definitely the manner of housing that had been in vogue here. Only occasional traces of former dwellings were encountered, and these were of such an obscure character as to tell practically nothing of the nature of their shelters. At frequent intervals over the entire site and at every level, I came on small beds of ashes, of a diameter of about sixteen feet, with

the faintest suggestion of an encircling compound, but none of these appear to have endured for any length of time. In fact, the only characteristic that they reveal clearly is that they were extremely ephemeral.

The camp site, on the contrary, had evidently endured for a long period, for over the entire area, which is above the normal in extent, was strewn an enormous amount of camp litter, to an average depth of thirty-six inches. This debris is continuous from the original stony, alluvial surface up, except for the occasional intrusion of gravelly detritus in places where the creek in time of flood had, at irregular intervals, invaded the village. It included the ordinary constituents—shells, fish scales, the bones of seal, porpoise, whale and those of land mammals and birds. Few fragments of stone utensils, aside from weapons, were found at this site.

I soon located two distinct and widely separated cemeteries, each near the present western border of the site. One of these, about one hundred and eighty feet south of the northern border, appears to have been a burial plot exclusively for males, the adults all being unmistakably male, and the inference being that the children present were the same.

One remarkable fact in connection with this cemetery was the presence of one restricted plot containing the remains of seventeen adults who had died in battle, either "public fight or private brawl," a mangled group, some with crushed skulls, some with broken bones, others with jagged flint weapons piercing vital parts. (See plate No. 14.) At first one imagines a group of fallen heroes, a Canaliño Leonidas and his followers, who had died gloriously in defense of their rights. But each burial was laid in the conventional "flexed," or embryonic posture, a position that would hardly be possible to achieve, if the bodies had been brought from distant battle fields and *rigor mortis* had set in. This great grave lay upon the extreme outskirts of a rather populous burial plot.

The entire cemetery was not explored, but enough was accomplished, I believe, to give a fair indication of the conditions that prevailed there. Nearly fifty burials were examined. In each case the skeletons lay flexed, with faces down. In the majority of instances, the heads were pointed towards the north-west; a few lay at right angles to these, with heads to the south-

west. The personal belongings found in these graves were those naturally to be expected, flint weapons, dear to the heart of primitive hunters, and adornments that appealed most to the vanity of the male savage. These consisted of heavy, incised gorgets of clam and abalone shell and heavy beads of various stones that were capable of a high degree of polish, such as staurotide, steatite and serpentine. The so-called wampum, beads formed from the shell of the *Olivella biplicata*, in this place were of a much greater diameter than those usually found, in striking contrast to the extremely minute specimens found in such great quantity in the second cemetery of this site.

This burial plot, in common with many others of the same people, shows the effect of using the same spot over and over again for the purpose of interment. In nearly every instance where a trench was put down, I began to encounter sheaves of human bones at about the eighteen inch level, carefully laid lengthwise of the grave. Just below these, I came to series of human skulls, in most instances minus the lower jaws, and then the flexed skeleton, with usually a cluster of lower jaws beside it. The story of the burial customs in vogue here was, at least in part, well told. When occasion arose for a burial, a grave was put down in the most congested part of the cemetery, all burials and reburials encountered being carefully removed and laid aside. After the deposit of the corpse, the skeletal material that had been removed was conscientiously returned and the grave filled in. This thickly populated cemetery is probably connected, at least by scattered graves, with the one exposed by the freshet of 1914 at the edge of the creek.

To the southeast of the above-mentioned burial plot and separated from it by an interval of two hundred and seventy feet, there was another cemetery in which the skeletons lay in an almost unbelievable density. In one five by eight foot space, and reaching only to a depth of thirty-six inches, were *the remains of twenty-four individuals*, half of whom were in the undisturbed position of their burial, the others being disarranged reburials. Another place nearby disclosed a single grave into which had been packed the bones of thirteen former occupants, the number of individuals being accurately indicated by the presence of thirteen skulls and the same number of sacrum. Still another grave had ten reburials.

The majority of the remains found in this plot were those of females, although a few males also were present. Among other striking features found here was the presence of several large slabs of whale bone standing upright in the graves. One of these stood beside three adult skeletons that to all appearances had been placed there simultaneously.

Another large slab, formed from the scapula of a whale and decorated with well worked, parallel rows of "cup pits," undoubtedly marked the grave of those held in high esteem by the villagers. Judging from their accompaniments, two important personages had been removed to make a place for this interment. These had later been replaced above the more recent occupants below. The large bone slab had been secured and, at great expenditure of time and labor, had been engraved with some potent inscription or talisman. Even this was not enough to indicate the degree of affection with which the living regarded the young mother and child who had been laid to rest, for they were fairly smothered in beads of many types and other forms of adornment, including great quantities of red-oxide paint.

This cemetery yielded numbers of well made and highly polished stone beads, and many thousands of the type of bead known as "wampum" which ran much smaller than did those found in the neighboring men's plot. These beads were, in many instances, of the smallest dimension of any yet found in this locality, and the methods by which they were produced, with the crude conveniences at the disposal of the artisans, can not fail to excite our wonder.

By far the most striking personal adornments found were great numbers of the shells of the Giant Keyhole Limpet, *Megathura crenulata*; these had been worn as hair ornaments in large clusters, resembling scale armor. They were invariably found at the back of the head or shoulders. Frequently the design in which they had played a part could be traced. They were found in all degrees of adaptation, from the complete natural shell down through a regular scale of modifications, until finally only a mere thread of material remained about the orifice; the whole series is a most interesting study in the evolution of a very characteristic hair ornament. It is also interesting to note that the component parts of each cluster of

these shells had been made to harmonize; in other words no entire shells were found amidst a cluster of those partly shaped, and no skeletonized orifice was to be found among shells only partly ground away. Each shell in a group was shaped approximately like its companions.

I have neglected to state, heretofore, that in the majority of instances the burials found in the women's cemetery had the heads pointed toward the northwest. Exceptions to this rule were not lacking, however, and these were pointed in almost every direction of the compass. In every instance, the body was flexed, and in the majority of cases the face was down. Perhaps ten percent of the skeletons lay upon one side or the other. The skeletons examined in this plot approximated one hundred in number.

Strangely enough, no kitchen utensils, commonly recognized as such, were found in either cemetery. A few large abalone shells were present, and these probably had served as vessels.

Between the two burial plots, but much nearer to the men's than to the women's section, was the great ceremonial dance floor, elliptical in outline, the longest diameter extending northeast and southwest about one hundred feet, entirely clear of stones and with very little refuse present. A short distance from the southwestern border of this floor had stood the semi-subterranean "temescal"; the lower part of its circular walls had been constructed of boulders, the circle being some twenty feet in diameter. Inside this compound were quantities of charred material and ashes.

All things considered, this proved a very interesting site; it was purely of the third culture epoch, no trace of the earlier people being found. I failed to find any evidence of white influence, and feel positive that this section of the village ceased to exist before historic times. In only one limited area did I find any mark left by former white excavators.

#### (73) TECOLOTE No. 2

At the time of my initial survey of this site, in May, 1926, I found the entire section to the west of the creek covered by a dense growth of immature hay. I could therefore hazard but a guess as to its possibilities, but it appeared to me that it was inferior to the site on the eastern bank of the stream. When

the hay was eventually gathered and the field was available for a more thorough investigation, I at once reversed my earlier conclusion. Camp-site refuse in profusion was found upon the surface, for a distance of seven hundred feet along the western bank of the creek and the present estero. This deposit began at the north, about one hundred and twenty-five feet south of the Southern Pacific right-of-way, and extended to the beach line on the south.

In direct contrast to site No. 1, fragmentary utensils of stone, showing a high order of skill in their production, were to be seen in abundance upon the surface. Among these fragments were not a few from exquisitely formed bowls and symmetrical pestles, none of which were encountered upon the opposite side of the creek.

The site appears to have been of bilobate contour, the northern lobe resting upon and encircling a small knoll, only slightly higher than the remaining portions of the village, which for their part were slightly more elevated than the companion village across the slough. The village reached its greatest width in the northern section, where it was one hundred and seventy-five feet wide.

A comprehensive system of trenches was driven, in an effort to locate essential details of this settlement. The camp debris which lay superimposed on the hard, stony, ancient surface, varied greatly in depth, owing largely, I believe, to the excessive erosion that has taken place in certain areas. A fair estimate of the average depth of this formation would be not far from thirty inches. The contents are fairly typical. One trench sunk upon the crest of the northern knoll may be taken as a fair example. Examination of the twelve inches of soil next below the cultivated stratum showed an excess of burned and fractured boulders and a large percentage of ashes and soot, causing the soil to be very loose in texture and intensely black in color. Numerous fragmentary shells made up most of the remaining contents but there were also many entire sea shells, principally of clam, oyster and mussel. Many bones of seal and porpoise were found in this stratum, as well as those of fish, but, curiously, no remains of land mammals. A few beads were present, but no other artifacts or traces of human bones were seen. Flint chips were numerous.

A thin stratum, immediately below the one described above, contained approximately the same materials, but in somewhat different proportions; the fragmentary boulders decreased in number, being replaced by the increasing ash content, which in places was almost uncontaminated by other material. The food refuse, in addition to the varieties found in the superimposed stratum, contained fragments of crab, rabbit and deer.

The third stratum, which rested upon the original surface, showed the burned boulders again in ascendancy, with much less refuse and of a slightly different character. Fewer shellfish were found but these were of much larger average size. No fish remains could be recognized. Whale remains were fairly abundant, and also those of the deer; the bones of the seal, however, predominated.

At the foot of the knoll, to the south and outside the residential ellipse, lay the cemetery, apparently in two distinct sections. These were almost directly across the creek to the west from the men's cemetery of Tecolote No. 1. I found that a great deal of digging had been done here in the past by relic hunters and even by scientific investigators. Of the former the most untiring appears to have been Francisco ("Chico") Leyva, whose lootings extended over a period of many years. An excavator of more recent years was Prof. Putnam, who was here about the year 1907.

Tradition records the wonderful finds made by these early investigators. If these tales are true, then we must concede that good fortune led them to the only existing treasure trove, for of the several undisturbed burials which I found about the fringe of the older pits, none were accompanied by anything of significance. The burials lay quite uniformly at a depth of about thirty inches, and in the majority of instances, the heads were turned to the southwest, although others were toward other points of the compass. All were flexed and the majority were face down. The crania conformed very closely, in all details, to those from other known sites of the Canaliño.

South of the cemeteries and skirting the southern group of huts on the north, was the site once utilized as a ceremonial dance floor, hard, compact, and clear of stones. This area was elliptical in outline, nearly one hundred feet in length by fifty feet wide, the long axis running northeast by southwest. About

the borders of this place were piled great numbers of stones that had very likely been cleared from the floor.

Just outside the southern extremity of this compound and to the east of it, at the edge of the creek-bank, were the vestiges of a "temescal." This at one time was probably well back from the brink, but, owing to the encroachment of the stream in times of freshet, the structure is now largely effaced, not more than one-fourth of the ruined grotto remaining in the face of the bank. A segmental arc of the former encircling wall, within which may yet be traced beds of ashes and charcoal, gave indisputable evidence of its former functions.

At this point I wish to call attention to the symmetrical arrangement of the various divisions of the twin juxtaposed sections of the village, a suggestion of engineering forethought in direct contrast with the usual haphazard methods of the Indians.

The first glance at the map may fail to convey this impression of similarity. Let us analyze the location, by suggesting that early in the history of the two villages, each had consisted of two nuclei, one on each side of the estero near the beach and directly opposite each other. Several hundred feet to the north, beside the creek and before it entered the estero, lay two other small villages, these also being directly opposed to one another across the stream. On the southern border of each of the northern settlements were located their respective cemeteries, almost directly opposite and at an equal distance from the creek. Directly opposite, across the head of the estero and equidistant from the mouth of the creek lay the two great dance compounds, duplicates to the slightest detail. Near the southern bounds of each was the ever present "temescal," at the northern border of each southern settlement.

I believe that this analysis will prove my contention that an unprecedented similarity existed in these two sites. To be sure, as time went on, circumstances incident to long residence here lessened to a certain extent the early similarity. The settlements to the east continued to expand until they eventually merged. To the west of the creek, this expansion was not so marked. Hence we find at the latter place that the cemetery and dance platform are still outside the plot occupied by dwellings and are therefore fairly clear of camp refuse, while, upon

the eastern side, the merging settlements have completely enveloped both the cemetery and the dance platform in a blanket of debris.

The two "temescals," facing each other across the head of the estero, lead to further conjectures as to conditions that once prevailed here. At the close of the sweathouse ceremony, a plunge into cold water was considered essential. This might have been accomplished after a three hundred and fifty foot run to the beach, but I think it much more in accord with Indian temperament to assume that a deep pool of fresh water once existed at the place where the mountain torrent entered the marsh, directly between the two sweathouses.

According to this theory of complete duplication, there should, of course, have been a counterpart to the southern cemetery of site No. 1. There is, however, no proof that such a cemetery did not exist. I was forced to discontinue my exploration of the site before I could investigate thoroughly all the points of interest.

Basing my theory upon other points of similarity noted here and also upon results from other sites, I should say that in the beginning each of the four nuclei of this settlement had its burial plot, in each instance upon the southern border of the residential plot. In the course of time, all of these cemeteries were engulfed by the expanding village site, with the single exception of the northern one on the western side of the creek.

Another point of great interest is that the area now occupied by the estero is only a fraction of its former extent. By laboriously tracing its former boundaries by means of trenching, I found that in ancient times it extended much farther to the west than it does at present. Over an extended area, I found the odoriferous black mud of the swamp, and a boulder-strewn channel of the former creek, now lying beneath the meadow land. Mr. Robert Main recollects that this spot was miry as late as thirty-five years ago. It appears plain that, in very early times, the mouth of the lagoon was near the western promontory, instead of in its present central position, and that the chief cause of its deflection was a debris-laden pathway that crossed it in a direct line from the temescal to the beach.

The Indians had, in all probability, at an early period crossed the estero from the more densely populated portion of

the village by a narrow, boggy path, instead of making the long dry-shod detour by way of the western promontory. As time went on, this path was gradually raised and widened by the accumulating debris that drifted on or was dumped in the thorefare, eventually choking the watercourse and reclaiming the portion of the estero that lay to the west. A trench driven through this ancient, built-up roadway showed that at first it was repeatedly overwhelmed by high tides and freshets, but that from a certain level to the surface there remains no trace of its ever having been submerged. Here, then, we have direct evidence of an engineering accomplishment by our primitive predecessors, inadvertent, no doubt, but nevertheless effectively forcing the long established course of nature to conform to the convenience of man.

The southern contour of the western village thus presents a forked appearance, one prong of which represents the location of the narrow, residential fringe that skirted the western edge of the former lagoon, the other the accumulated rubbish marking the site of the prehistoric roadway to the beach. The rubbish composing this former path is of the utmost interest to the investigator, containing as it does an abundance of the choicest artifacts of the villagers. Judging from the artifacts alone, I should say that the material from which this causeway was constructed was derived directly from the floors of the huts at house-cleaning time.

Throughout the entire investigation, not one item indicated that any people except those of the third culture had ever resided here. While there can be little doubt that the life of this village continued to historic times, I did not succeed in unearthing any evidence of contact with the whites. No glass beads or other articles of white manufacture were found, but this evidence should not be taken as conclusive, for I found little that would be of value in establishing a sequence here. We can only say positively that this people had reached a high order of proficiency in the manufacture of their artifacts and that their cranial development was of an advanced type. Fish appear to have been a minor part of their food supply and mammals the major, seal meat predominating. Manufacturing was carried on actively, great numbers of flint chips being present in the rubbish heaps, especially in the one to the south.

It is regrettable that more material was not secured, which would help to trace the relationship of this section of the village to that upon the eastern side of the creek. I think that they were undoubtedly contemporaneous, but feel almost equally sure that they were under separate administrations. We realize that only in time of flood would the creek impose any natural barrier to ready intercourse between the two settlements, yet we have unmistakable evidence of a complete equipment of civic establishments on each side that would have made them independent of each other, if they had chosen to separate.

Tecolote No. 2 probably contained not less than twenty large huts and in all likelihood a few more than that.

Among the old settlers of the vicinity, there linger memories of the last survivor of this village, who, as an old man, had told of the duties imposed upon him as a youth; these were to turn back the herds belonging to the Mission when they strayed up the coast.

(74) (75) *TECOLOTE NO. 3 AND NO. 4*

On the flat crests of the bluffs that border Tecolote Canyon on either side, to the north of the Coast Highway, are indications of former settlement sites. These are at least one-half mile from the sea. Each of these locations was doubtless covered by oak forests in times past. A rather exhaustive superficial survey was made of them, but, owing to the presence of heavy crops at the time of our visit, no trenches could be put down. My conclusions in regard to these sites are somewhat uncertain. I am, however, positive that both the Oak Grove People and the Canaliño had occupied both of these sites for considerable periods, for ancient manos and oval metates were present in great numbers, as well as the more advanced products of the later race. Only systematic trenching could determine whether these were the remains of permanent settlements, or only those of camping places in times of the acorn harvest.

## CHAPTER V

### DESCRIPTION OF SITES (Continued)

#### (76) EAGLE CANYON

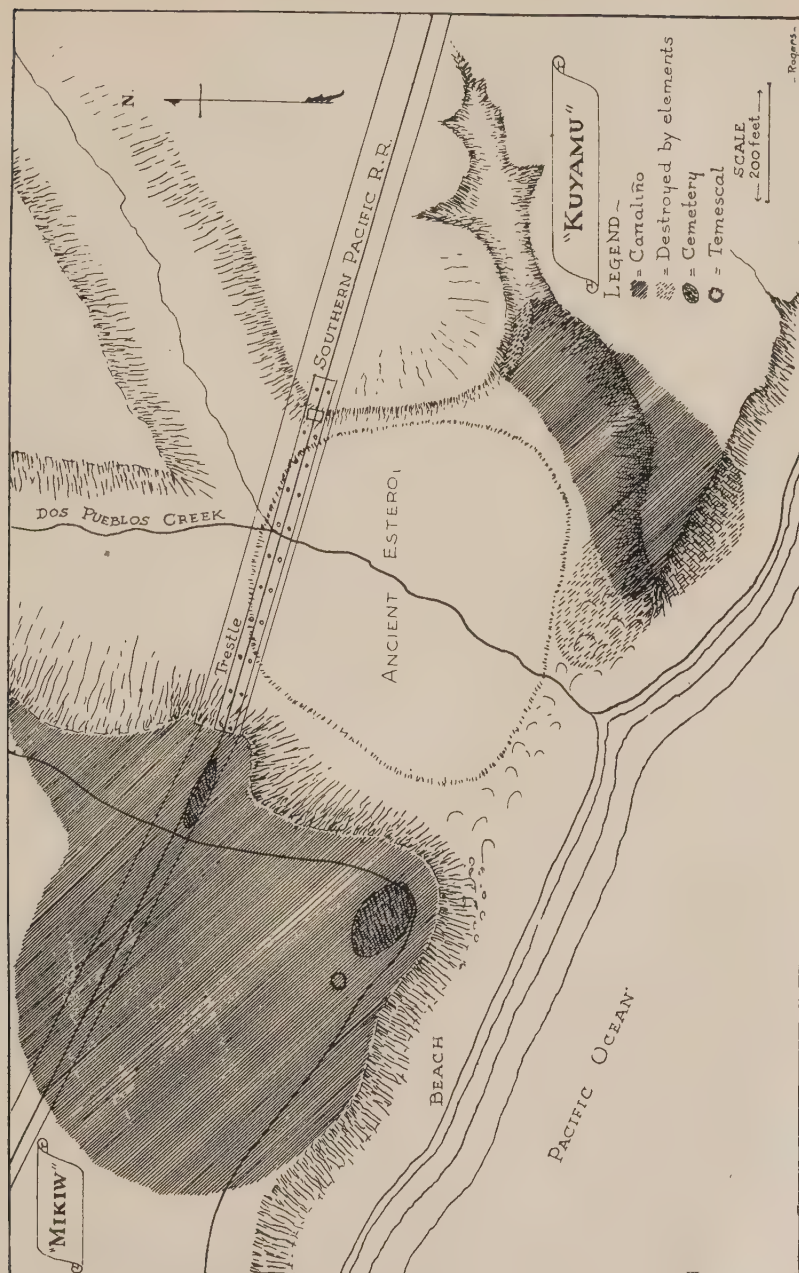
THE next prominent canyon to the west of Tecolote is Eagle Canyon. Upon a low exposed flat near its mouth and also upon an adjoining hillside are abundant evidences that a restricted area here was once a homesite of the Canaliño.

#### “THE TWO VILLAGES”

Fifteen miles west of the city of Santa Barbara, the Southern Pacific railway station of Naples marks approximately the location of the historic twin towns of “Dos Pueblos.” According to the records of early chroniclers, as interpreted by Harrington, the westernmost of these villages bore the Indian name of “Mikiw,” while that to the east was known as “Kuyamu.” These, too, are the names given by Kroeber in the “Handbook of the Indians of California.”

As this site is among the first identifiable places mentioned in Cabrillo’s memorable chronicle, it has proved a lodestone towards which many organized expeditions and individuals have turned, in quest of romantic atmosphere and material relics. From a period soon after the conquest of the region by the Anglo-Saxon until the present time, the site has been repeatedly visited by archaeologists and relic hunters, each to claim his share of the apparently inexhaustible supply of prehistoric material that was once to be found here.

In looking over the list of former excavators, among whom may be mentioned Yarrow and Henshaw, Stephen Bowers, Schumacher, the Frenchmen Pinart and Cessac, Francisco Leyva, Louis Dreyfus, et al., each an enthusiast and unquestionably capable, one wonders how anything worth while can still be found here; yet investigation proves that in this site, so great in extent and so intensively occupied for apparently a long period, the repeated looting has only served to mutilate



MAP No. 25



the record that could have been traced here by an early investigator.

We can still piece together a fairly consecutive story of the lives of this people. The earliest historical comment that we have upon the place is found in the record left by Cabrillo, wherein he states that upon Monday, October 16th, 1542, he came opposite "the place of Dos Pueblos" and that many canoes were constantly coming therefrom to meet him.

Dr. H. C. Yarrow, in the report of the U. S. Geographical Survey, West of the 100th Meridian, Vol. VII, 1879, writing of the year, 1875, says:—"In the narration by Bartolome Ferrel this locality is called Dos Pueblos from the fact of there being two towns on opposite sides of the creek which runs down from the Santa Ynez Mountains. These towns were densely populated with mild inoffensive people. We were informed by Mrs. Welch [resident owner] that she had heard from an aged Indian woman that two separate tribes, speaking different dialects, lived on opposite sides of the creek, which constituted the boundary line between them, and that the tribes were not permitted to cross this creek without first obtaining each other's consent. This old crone for many years continued to visit this spot annually to mourn the departed greatness of her people."

In an excerpt from Thompson and West's "History of Santa Barbara County", 1883, p. 18, we read the following:—"Within the memory of persons now living, there were two Indian villages at Dos Pueblos. The people of these two towns, though separated only by an insignificant stream, spoke different languages and were of an entirely different character, one people being short, thick and swarthy, the other tall, slender and of light complexion. One village was peopled by congeners of the Shoshones, the other by the Aztec race. Which was the older, which the aggressor, whether a long series of wars had taught each to respect the rights and territories of the other, is unknown. The depth of the kitchen refuse, and the presence of shells of an extinct variety of mollusks at a depth of several feet, fixes the residence of the Indians here nearly as far back as the Christian era, and contemporary with the mound-builders."

In the time at my disposal, during the mid-summer of 1925, I could do little more than roughly outline the possibilities

which an extended campaign here might develop. The site itself is quite striking in its location and in the topographical characteristics that tend to isolate the two villages from each other. The six hundred and sixty foot Naples trestle of the Southern Pacific Railroad spans the Dos Pueblos gorge at the place where its two branches unite, some eight hundred feet from the surf line. From sixty-five feet below the floor of the trestle to the sea, meander the combined waters of the two creeks, across the now silted-in basin that, within the memory of living men, contained a fairly large estero.

(78) "MIKIW"

At its western extremity, the long railway trestle comes flush with a table land, or mesa, that forms the crest of the western promontory at the mouth of Dos Pueblos Canyon. This table land is bounded on the east by the expanse of the former estero and on the southwest by the sea, steep bluffs, sixty-five feet in height, dropping away in these directions. Over the nearly flat surface of the mesa, for a distance of over six hundred feet measured west from the terminus of the trestle, and of nearly equal extent when measured from the sea cliff north, is a great accumulation of easily recognized "Indian soil," chiefly characterized by its sooty, "greasy" texture and by the quantity of shell debris which it contains. At the time of my survey, the tract between the railroad and the edge of the cliff was devoted to pasture-land, through which curved and meandered a gravel driveway. The railroad right-of-way occupied an appreciable fraction of the site and to the north of this, within the cultivated zone, still more of the site extended.

Even after years of cultivation and after having been subjected to innumerable visitations by relic hunters, portions of the site still show evidences of primitive village life. At the western head of the trestle, where it touches the mesa, there begins an elongated heap of camp refuse that still retains to a remarkable degree its original contour, despite the efforts of ranchmen, relic hunters and section hands to deface it. There is another similar heap about half way between the sea cliff and the railroad, bordering the eastern edge of the cliff.



The Crest of the Distant Promontory Once Held the Prominent Indian Village of "Mikay"



The Low Land upon the Farther Side of the Sand-Waste, and the Adjoining Hillside Is the Site of Ancient "Kuyamu"



A Series of the Peculiar Hand-Worn Stones Which Are Found Only at "Kuyamu"

The development of this extensive former site was undertaken through a series of test trenches put down in parts of the debris-strewn tract, extending downward in each case till they reached soil never before disturbed by man.

The aforementioned heaps of kitchen refuse proved of great interest, disclosing as they did the nearly complete story of the food habits of the former inhabitants. One trench in particular, fifty-six feet long, passed entirely through the southern heap from side to side; the heap was five feet in depth, at the center, and rested upon a hard, stony bed that sloped downward away from the cliff. The constituents of this heap were large quantities of pure ash, mammal and fish bones, fish scales and some shells. In the midst of this material were a few human fragments; the majority were burned and offered a gruesome suggestion. The masses of fish scales and bones were of almost continuous interest, containing as they did large numbers of fragmentary shell fish-hooks, that had probably originally been incased in the discarded fish offal.

The northern refuse heap, now much broken in outline and contour, reached a depth of six feet. Since this was at the head of the steep trail that led from the beach, the source of their principal food supply, it would naturally be the place of the earliest and the longest continued settlement, and the depth of the refuse here confirmed this inference. It was also very advantageously situated as a lookout station, as it had a commanding view of sea and valley. The secondary refuse heap to the south was only slightly less well situated and it too had taken on considerable proportions, being one hundred and forty feet long. Both heaps were rich in artifacts, nearly all in fragmentary condition.

No dance platform could be positively located, although certain indications pointed to its having been situated upon the smooth flat that is included between the two chief refuse heaps.

A "temescal" of considerable proportions was located a short distance to the southwest of the western extremity of the southern refuse heap. Its exact details could not be determined, owing to the efforts of former excavators to obliterate it. Layer upon layer of charred wood was found, interspersed with beds of ashes; vestiges of unburned wood were also present. This circular structure might have been anywhere from fourteen to

eighteen feet in diameter, one small section only of the periphery having escaped the devastation wrought by my predecessors. Amidst the jumble of material found in their filled-in trenches here, were several much disintegrated sections of whale vertebræ, apparently modified in form by having the protuberances ground away. I feel convinced that these objects had once served in some ritualistic capacity, either in this "temescal" or in some closely adjoining structure.

Upon the southern side of each of the great refuse heaps was once located a cemetery. The one to the north was undoubtedly much the older, the frail skeletons being far too advanced in disintegration to preserve; they were flexed, face down, and with heads to the southwest. So far as my observations went, this burial plot had never been very populous and was abandoned long previous to the final passing of the villagers. Artifacts were of extreme rarity here.

The cemetery that flanked the southern refuse heap was the one plotted by Yarrow and the place from which the enormous treasure of relics had been taken in former years. In an effort to obtain data bearing upon this plot, I drove several longitudinal and lateral trenches through it. I found it quite thoroughly ransacked from beginning to end. Evidently the former excavators had been chiefly concerned in obtaining the larger and more striking artifacts only, to the total disregard of the smaller personal belongings, or the fine array of skeletal material that must have been present in those earlier days. In their especial line there can be no doubt as to their success, for Yarrow in his report, p. 42, says: "The specimens [that he packed] were roughly estimated as weighing ten or fifteen tons." A very limited amount of skeletal material, if any, was removed by them, for I found the soil thoroughly littered with fragments of human bones.

Yarrow speaks explicitly of the presence of whale bone that projected above the surface near the edge of the cliff in 1875, and gives us to understand that at that time this was considered as an unfailing sign of a burial plot; this contention was verified, in this instance, by the wealth of material which he uncovered, when he dug at the place indicated. I found great quantities of this whale bone when I opened the disturbed cemetery. These were principally fragments of ribs, tending to confirm

the old records of arched whale ribs above the graves. Besides these fragments there were large slabs of whale bone, formed from the scapula or sternum. These probably functioned as grave slabs, as did the many flat boulders that were interspersed with the wreckage of the plot.

Occasionally there were encountered portions of graves that were still intact. In one of these was the major portion of a skeleton *in situ* and accompanied by typical artifacts, a large, perfect steatite "olla," a long pestle, etc. These rare undisturbed graves only indicated an occasional lapse in the otherwise very thorough methods adopted by the early excavators.

The presence of great numbers of smaller artifacts, beads, ornaments, arrowheads, etc., indicated that no attempt at screening was made. These smaller objects were in such abundance at the time of my visit, that scarcely a spadeful of earth was thrown out that did not contain some object of interest. I believe it to be no exaggeration to state that I have salvaged at least eight thousand, small, worth-while artifacts from this much harried cemetery, principally beads of shell of several different types. There were also several beads and ornaments of staurotite and serpentine, and other forms of ornaments, all of native manufacture. Very few glass beads were found and these appeared to be restricted to certain small areas, as though the burials had been few after contact with the whites. A small brass crucifix and a brass pendant were also found. Yarrow speaks of finding iron weapons and china dishes in the graves in 1875, but none were left for my inspection. Red ochre paint was abundant throughout the wreckage.

On page 42 of his report, Yarrow mentions finding in this cemetery, thirty skeletons that had been buried in beach sand. This condition appeared unaccountable, yet I had the good fortune to find this location with the great bed of sand still in place. It was surely a strange cult that had led this particular group to carry not less than five tons of fine sand up the face of this sixty-five foot bluff to fulfill burial rites. I am at a loss to account for a possible origin of this custom. Yarrow also mentions the evidences of frequent reburials in this cemetery, a statement which coincides with the customs found to be in vogue in other cemeteries of the Canaliño. I look upon the possibilities of this field as being far from exhausted.

(77) "KUYAMU."

(See Map. No. 25.)

Seven hundred and fifty feet to the southeast, from the brink of the mesa on which "Mikiw" is situated, and facing it across the basin once occupied by the estero, is the headland that shelters the companion village of "Kuyamu." This southeastern promontory is entirely different from its mate, in all topographical features. It is long, narrow and pointed, and slopes sharply downward to the northwest, on the landward side, to a level bench some twelve feet higher than the surface of the estero, and measuring three hundred and seventy-five feet long from the northeast to southwest, by one hundred and eighty feet wide at the widest part. The length was at one time somewhat greater, but destructive freshets within historic times have swept away a considerable section of the former southwestern extremity and have also cut a ravine through the extreme northeastern part. Over this entire lower bench, as well as on the sides and top of the promontory, are evidences of former occupancy.

In later years, owing to the filling in of the estero, the forming of sand dunes at its mouth and the erosion from the point of the promontory, there has been a deflection of the prevailing wind currents, which has had the effect of heaping small drifts of loose sand across the central part of the lower bench. These drifts are of very recent origin and rest upon over five feet of black camp-site soil. The great depth of the latter formation may be partially accounted for by the presence in its makeup of a certain percentage of fine sand, resulting from sand storms throughout the ages.

I found, by careful analysis, that other natural agencies had been at work, reducing the former extent and contour of the site. On the crest of the ridge, where it overhangs the beach, I found a thick deposit of camp refuse, the exposed seaward side of which gave a fine sectional view of the stratifications, and also indicated that it had once extended much farther to the south. Beneath this, near the beach level, a well-defined geological minor fault permits the egress of a trickling stream of liquid asphaltum, probably once a great asset to the Indians. Unmistakable signs are present that in the immediate vicinity of the fault, a great piece of the cliff has slipped into the sea,

carrying with it a portion of the village site, at the most conservative estimate fully fifty feet in width. This destruction may have been the result of one great movement. I am, however, inclined to look upon it as the aggregate result of a number of smaller movements. This conclusion is based largely upon an incident that occurred at the time of my investigations there, viz., the historic earth movement of June, 1925. At that time, enough of the cliff fell to destroy practically all of the refuse deposit that I had previously examined upon the crest of the ridge, and I look upon this as a typical demonstration of what has been in progress for ages. The various and profound changes that have been wrought by nature upon this very interesting rancheria site, make conclusions based upon a brief period of exploration very indefinite.

The result of my trenching activities at this place were largely negative. The built-up soil, to a depth of five feet, showed practically the same conditions that prevailed in all other village sites of the Canaliño. The only marked difference noted in the artifacts was confined to a single class, a series of crude, massive stone utensils that were found in considerable numbers upon the surface and in the trenches. Each of these stones is a roughly elliptical, flat boulder, with no trace of shaping of the bottom or of the outline. The upper surface shows plainly the effect of long hours of abrading, which have formed in each case a compound, shallow depression of considerable longitudinal extent but having no distinct outline. As there is little divergence in the form of these objects, I have selected only five as subjects for the cut (see Plate No. <sup>18</sup>~~19~~), these serving to illustrate the only detail in which they vary, namely, size. The largest measures thirty-two by twenty-seven inches, the smallest fourteen by eleven and one-half inches. They range from seven to five and one-half inches in thickness.

Granting that these unique utensils represent a form of milling stone, it is difficult to conjecture how the grist was held upon the slight concavity of these slabs. No evidence is present of the attachment of a hopper, such as we see in the case of the well known "basket mortar" form. Moreover the attachment of a hopper would have made the use of a pestle imperative. No trace of the use of this utensil was found here, the abraded cavities plainly being the result of a rubbing movement,

as contrasted with the plunging action of a pestle. Judged by the standard metates found at other sites, these stones were very inadequate for milling purposes, yet the frequency of their occurrence here, their uniformity, and the fact that no other form of mortar can be traced here, even by fragments, indicates that this peculiar form was an important adjunct to the life of this particular settlement. They are a very distinct divergence from any artifact encountered elsewhere.

A year after my investigations ceased here, Dr. Wm. J. Mellinger and Mr. J. F. Hurlbut volunteered to conduct trenching operations at "Kuyamu," in amplification of my work. The results of their efforts were much more satisfying than those that I had secured. A fairly comprehensive series of minor artifacts were obtained from depths that ranged from one to seven feet, and these, without exception, are identical in type with those found upon the site of their neighbors of "Mikiw."

In one respect each of these efforts to explore the site of ancient "Kuyamu" failed. In spite of our most earnest efforts, carried on by means of long-sustained and carefully planned systematic trenching that covered all the remaining portions of the site that seemed promising, no human skeletal material was secured. I can only suggest, in explanation of our failure to locate a burial plot, that it is altogether possible, not to say probable, that some of the earth movements have effaced the entire cemetery. Lacking the evidence that might have been obtained from this source, I am unable to form a definite conclusion as to the marked physical distinctions that were said to differentiate the people of "Kuyamu" from those of "Mikiw."

While in the majority of cases the ideals and workmanship of the two, as exemplified by the artifacts found, are apparently identical, the testimony of the massive, unique milling stones of Kuyamu must not be ignored. Perhaps some development of the future may throw additional light upon their true significance.

Although little evidence was secured that would substantiate the tradition of two distinct peoples occupying the mouth of this canyon, yet enough of interest was found to show that at this place at one time resided one of the finest examples of the people of the third culture, a people that well merited the halo of glamor and romance with which the early chroniclers surrounded them.

## (79) DOS PUEBLOS

As the Coast Highway rises from the bridge over Dos Pueblos Creek, it passes through a moderately deep cut in the western bank. Along the tops of the banks, on either side of the road, are well defined evidences of a former settlement of the Oak Grove People. As a result of long cultivation and recent grading operations, the story of this site has been almost obliterated and its boundaries are now indeterminable. I am inclined to believe, however, that it was among the largest settlements of this people that I have examined.

## (80) LOS GATOS

One-half mile to the east of Las Llagas No. 1 and one-fourth mile from the coast line, in a cluster of ancient oaks, is an accumulation of camp debris, consisting of large forms of shellfish, bones of the larger mammals, many flint chips and fragments of heavy crude flint weapons and kitchen utensils. The latter display none of the characteristics that we have learned to associate with products of the Canaliño. Small irregular hemispherical stone bowls with angular rims, short clumsy pestles and innumerable green-stone hammers form the bulk of these artifacts. I assume that at this place there had been a small village of the Hunting People. Their cemetery is near the brink of Los Gatos Canyon.

## (81) (82) (83) LAS LLAGAS

Seventeen miles west of Santa Barbara, the Coast Highway crosses Las Llagas Canyon, a short distance from the sea. Here, between the highway and the beach, are located three Indian sites. Although these are clustered about the narrow mouth of the canyon, they are separated from each other by considerable intervals and differ in their topographical features. Moreover, after a fairly exhaustive examination of the three, I feel that each is representative of a different age and, to a certain degree, of a different mode of life from its neighbor.

Las Llagas Canyon breaks through the sea-cliff by way of a narrow gorge. There is no estero present here, an unusual feature but easily understood from the fact that the cleft of the gorge is too restricted to accommodate a lagoon. There is, how-

ever, a luxuriant growth of tules, flags and willows about the mouth of the mountain stream that occupies the bottom of the ravine. A short, deep barranca enters the canyon on the west, just before it opens to the sea, leaving a high abrupt point of land between the two ravines. Upon this point and upon the crest of each of the two promontories to the right and to the left, are the vestiges of three rancheria sites. These have been arbitrarily designated by number, No. 1 being the easternmost, No. 2 the central and No. 3 the westernmost.

A mile to the west, across a small bay and in plain view, lay the neighboring settlement of "Ajuahuilashmu" (Harrington) located upon the present El Capitan Point. Two miles east lay the historic twin towns "Dos Pueblos," "Mikiw" and "Kuyamu" (Harrington). Skirting the eastern brink of Las Llagas Canyon runs the division line between the El Capitan and Edwards ranches, the land on the Edwards side being highly cultivated, and that on the other side being largely pasture land covered with chaparral. The ranch line bisects the rancheria site designated as No. 1, the major portion being in the cultivated area of the Edwards holdings. The other sites are entirely within the El Capitan holdings.

#### (81) LAS LLAGAS NO. 1

This site occupies the flat crest of an exposed headland (see Plate No. ~~192~~<sup>193</sup>), some seventy feet above high tide, and towards the north looks straight into the throat of the canyon. The soil is very loose and ashy, intensely black, and of the "greasy" texture so often noted at these sites. A fairly prominent content of broken sea shells and fragmentary bones of the larger mammals is noticeable over the entire area of former occupancy. Scattered plentifully over the surface are fragments of boulders, each showing the effects of fire and violent fracturing, and among these are not a few fragments of stone pots, mortars and pestles. A few perfect specimens of the latter and several well-worn hammers of tough "old green-stone" were also found upon the surface.

The site itself is, broadly speaking, in the form of an "L," one arm extending from the western shoulder of the promontory towards the east, closely adjacent to the edge of the cliff, for a distance of three hundred and forty feet. The other arm of

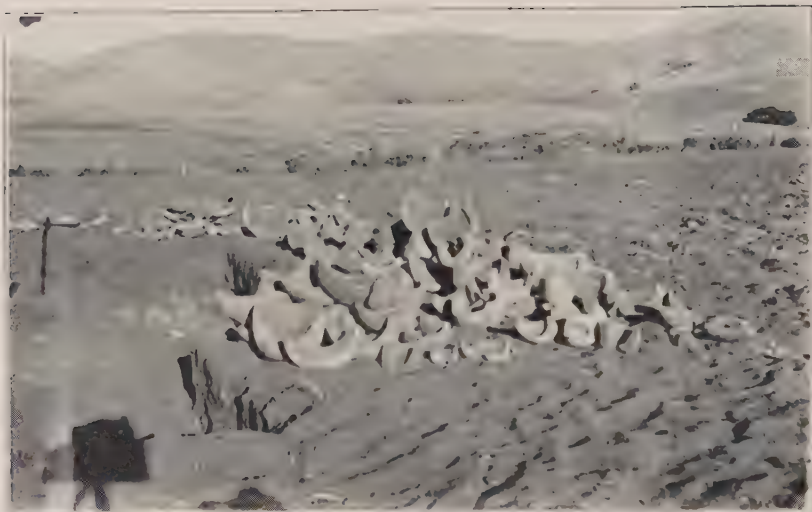
PLATE 19



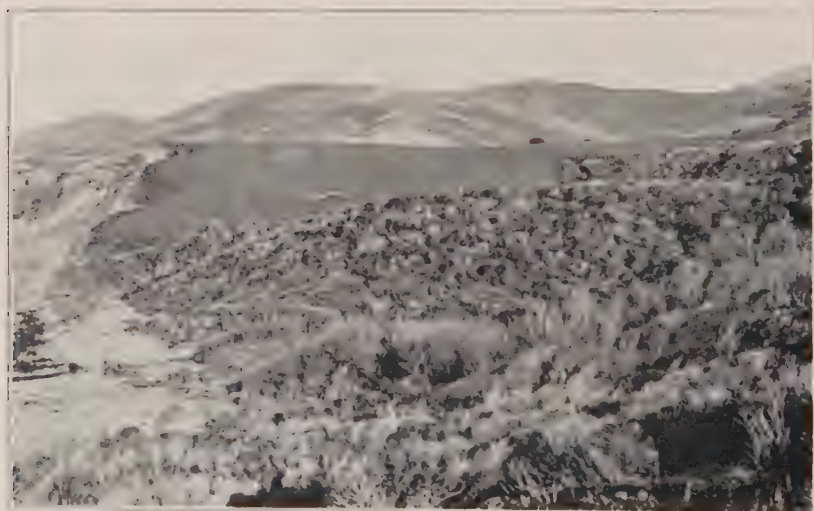
The Three Sections of Las Llagas. No. 3 is in the foreground,  
No. 2 is in the center of the brush-covered middle distance,  
and No. 1 on the crest of the distant promontory



A Section of the Trenches at Las Llagas No. 1, Showing a Part of  
the Vessels Which Had Been "Killed" as a Burial Rite



A Section of the Trenches at Las Llagas No. 1, Showing a Part of the Vessels Which Had Been "Killed" as a Burial Rite



View to the Northwest from Las Llagas No. 1, Showing Brush-Covered Site No. 2, in the Middle Distance, and the Cultivated Field Beyond Which Marks Site No. 3





the "L" extends in a general northerly direction from the shoulder of the headland, following the somewhat irregular eastern brink of the canyon for a distance of three hundred feet. The westernmost edge of the village is approximately six hundred feet from the nearest edge of site No. 2 across the gorge, and over one thousand feet from site No. 3 on the opposite headland.

Systematic trenching clearly indicated the number and position of the huts that had occupied the site during the closing years of its existence. The circular formation of the refuse heaps was easily traced, after I penetrated below the cultivated stratum. These circular heaps were not in perfect alignment, but were, nevertheless, confined to a single row that bent to conform to the contour of the village. In each example investigated, the outer parts of the circle, some thirty feet in diameter, were built up almost entirely of quantities of shell and bone refuse, the component parts of which were in a more or less entire condition. As we approached the center of the circle, the debris became more broken and was mixed with ashes, while the center was occupied throughout the entire depth by a bed of almost pure ash. In the ashes were many fragments of burned stones and a few broken stone vessels. Throughout the refuse I found an occasional bead or other small artifact and, most suggestive of all, an occasional fragment of human bone.

No trace of framework or covering of the thirteen huts examined could be found, but there can be little doubt that these structures were of large size.

In the eastern extension of the site, at some distance from the edge of the cliff, I found portions of a partially subterranean, circular structure, the floor of which was thirty inches below the present surface. The enclosure had been about twenty feet in diameter and was surrounded by a low barricade of boulders. Whether this had been a pit sunk into the debris of the village and surrounded by a retaining wall, or whether it had been laid out on the original surface, in the infancy of the settlement, and the boulders arranged to prevent the encroachment of the debris, I could not determine. Neither could I determine whether or not this structure had been roofed.

A considerable amount of charred wood upon the floor at first gave the impression that I was in the site of a "temescal."

The amount of charcoal was, however, entirely too limited to be conclusive, and later, upon the final clearing of the compound, the finding of two sunbursts of charm stones (described elsewhere) *in situ*, led me to suspect that I had here evidences of a sacred compound or shrine.

The examination of this most interesting ruin, and the complete ravelling of its story, were complicated by the fact that long before the abandonment of the village, this chamber had ceased to function and had fallen to decay, a part of it having been used as a cemetery. In an undisturbed part of the former enclosure, I found the two beautiful arrangements of charm-stones in place. Within the graves that had later intruded into the sacred precinct were found many of these same charm-stones, but not systematically arranged. The question naturally arises, were these burials those of priests, laid away with their sacred paraphernalia, or were they those of ordinary individuals which had replaced the carefully laid but forgotten shrine, the contents of which had been reburied as the grave was filled? I incline to the latter supposition, chiefly from the fact that, beginning with the skeletons found within a part of the sacred enclosure, I found closely adjacent one of the most highly congested burial plots conceivable. Outside the former boundaries of the temple, no charm-stones were found, inside they were of common occurrence.

In this account of the finding of the shrine, I have used one term, *charm-stones*, to include all non-utilitarian and non-decorative objects. These may be divided into plummets, effigies, pipes and dice, all of which were represented here.

The cemetery lay near the center of the eastern extension of the village, its southern edge about fifty feet from the edge of the cliff. Evidently there had originally been two nuclei about which the dead had been interred, until the two plots had become united. One nucleus had, in the beginning, been just outside the walls of the sacred enclosure, to the northeast, the other to the northwest. These two plots had increased in diameter until they finally merged and involved a part of the shrine. Hence the cemetery, as I found it, was bilobate in outline, ninety-six feet in length by forty feet in breadth. Within this limited space, an almost unbelievable number of burials had been placed; I traced no fewer than three hundred.

A most gratifying feature of the investigations at this place was the fact that no white excavator had touched spade to this site previous to my advent. Beneath the cultivated stratum I found everything of an unperishable nature exactly as it had been placed by the Indians, and could read a fairly clear story of their lives.

Their burial customs alone would appall anyone familiar only with the conventions of the modern Caucasian. Apparently but one essential was imperative in these interments, namely that it should be in a very thickly occupied part of the cemetery. As a consequence, the digging of each grave involved the removal of numbers of former burials or parts of the same. These grim reminders were always replaced about the latest claimant of the grave. My investigations were, therefore, carried on amidst undescribable masses of human wreckage, among which one had to proceed with the utmost care in order to read the story.

Occasionally I found an ancient skeleton that had been left undisturbed throughout the centuries; these were of the utmost value in determining sequences. In the majority of cases, however, owing to the customs in vogue, the skeletons found *in situ* were those of the last people to be buried. These skeletons were found usually at about the thirty-inch level, the level of the original surface of hard, yellowish, gravelly clay. A few graves had been sunk about ten inches into this formation. These graves almost invariably contained the above-mentioned ancient skeletons.

The heads of the burials were found pointing towards almost every point of the compass, although at least seventy-five per cent of them were towards the east. In at least ninety-five per cent of the cases, the bodies were flexed, mostly with the faces down. The few instances of prone burials were all of the older type and were all face up.

A most disconcerting feature of the burial ceremonies, from the point of view of an archæologist, was the symbolic breaking of stone vessels. Over four hundred portions of broken stone bowls, principally halves and quarters, were found in the graves; in the majority of cases the fragments of the pestles that had wrought the havoc were also present. I estimated that there could not have been less than one hundred of these great stone vessels

thus deliberately destroyed. (See Plates Nos. <sup>19</sup>~~22~~ and <sup>25</sup>~~26~~.) This is probably an under-estimate; in any case it represented the sacrificing to ritual of many months of arduous labor. Fortunately, this destruction was omitted in a few instances in the case of the larger pots and of all the more precious small serpentine bowls, of which several were recovered.

The weapons accompanying the warriors were of large, business-like proportions, although lacking, in a marked degree, the finish usually expected in flint products in this locality.

Within the environs of the sacred enclosure were found numbers of cigar-shaped ceremonial objects of exact form and exquisite finish.

The total absence of steatite at this site indicated that this people were not familiar with the Channel Island Indians. Moreover, the complete absence of any object of European manufacture shows clearly that there had been no contact with the white race. It is interesting, also, to compare the exhibits from this location with those from the neighboring site of "Mikiw," only two miles distant. At Mikiw there were quantities of steatite and abundant evidence of asphaltum; at Las Llagas No. 1 there was not a trace of either material, with the exception of two calking stones and the asphaltum attachments of two knives. No asphaltum "clove" skirt weights were found at Las Llagas No. 1, whereas these objects were probably the most characteristic finds at Mikiw, occurring in great numbers. The weapons at Las Llagas No. 1 were all large, heavy, crude and business-like. Those from Mikiw show the height of refinement in flint manufacture, appearing almost too delicate for use. There were great quantities of beads, amounting to several quarts, formed from a small cowry-like shell, the *Trivia californiana* at Las Llagas No. 1, but these are entirely lacking at Mikiw, although a few were secured from "Shuku." There were several other sharp contrasts that serve to illustrate the decided difference in the practices of the various villages.

I could find no evidences of maritime activities, the absence of fish-hooks, net sinkers and fish bones being very marked.

The site, in all probability, consisted of thirteen or possibly fifteen huts, or approximately a population of four hundred souls, assuming that the huts were all in use contemporaneously. The density and depth of the camp-site debris, taking the above

estimate of population as a basis, and also making due allowance for erosion of this exposed point, would indicate an occupancy of about four hundred years, an occupation that drew to a close not later than the year 1550 A.D. This estimate would coincide almost exactly with that based on the style of artifacts in use and would point to the period of transition from the crude, combative Hunting People to the more peaceful, pleasure-loving Canaliño.

For some unexplained reason, the site was abandoned centuries before it had attained the climax of Canaliño culture, but it had nevertheless advanced markedly.

Although limited in the span of years that it covers, the site of Las Llagas No. 1 presents the clearest picture of the life that it had supported of any of the many locations I have been able to examine.

Only one puzzling feature presented itself—the presence in the hard subsoil of a few ancient manos and fragments of greatly decomposed metates, all plainly reminiscent of the “Ancient Ones.” Do these fragments indicate that a settlement of the Oak Grove People was once located at this point, entirely at variance with their habits as heretofore observed? Or do they merely indicate that an oak grove once occupied this site, to which the “Ancient Ones” sometimes came for acorns?

(82) LAS LLAGAS No. 2

(“Mejmei”)

This site, while in some ways ideally located from an Indian standpoint, occupies a small steep-sided mound in the mouth of the canyon, the very restricted area of which would limit the population. The crest of the mound, suitable for the location of huts, is about one hundred and fifty feet long by forty feet wide at the widest part. Along the base of this mound to the east runs a mountain-born creek. It enters the sea directly, without the customary “estero,” but there is a rank growth of vegetation along its banks that would well supply the needs of the villagers in hut building. Two abutting promontories rise above the mound, which is little more than forty feet above high tide, and shut off the view both up and down the coast. Moreover, the position did not afford an unobstructed view towards the north and the mountains, whence raids from the dreaded

Tejones were ever to be guarded against. This site was also especially at the mercy of the one sea-storm to be dreaded along this coast, the terrific "southeaster."

At the time of my arrival, the entire mound was completely covered by an almost impenetrable growth of chaparral. It was necessary to clear this from the ground before even a superficial survey could intelligently be made. After this brush had been cleared, I had little difficulty in distinguishing the principal features of the site.

A few huts had occupied the crest; I could not determine the number, owing to the extensive erosion that had denuded the surface. The cemetery lay somewhat below the crest on the southeastern slope. It was small and elliptical in outline, thirty-five feet in length by twenty feet in width, the longer axis extending northwest and southeast. The cemetery had, to a large extent, been rifled by relic hunters. This small plot, wherever it had been desecrated, was fairly packed with fragments of human skeletons and not a few broken stone artifacts. In spite of the industry of my predecessors, there remained a few undisturbed burials and others of which a portion only had been destroyed. These were carefully studied and served admirably to interpret a part of the story of this site.

The crania conformed in every detail to the general run of the Canaliño type. The few artifacts accompanying them belonged to the third culture era, probably from the middle of the period on. Noticeable among the personal decorations were the vast numbers of asphaltum "clove" skirt weights. There were also numerous small spangles cut from abalone shell into the most charming and delicate designs, among which the trefoil was of frequent occurrence. The few flint weapons recovered were small and of a high order of finish, indicative of a late, advanced culture. No large or striking objects were found; hence the type of vessels employed may only be judged from the fragmentary material that had been discarded by relic hunters. These fragments also gave every indication of a high order of creative genius.

At one place the cemetery soil reached a depth of fifty-two inches. This particular section had been thoroughly rifled. However, at the lowest depth, I recovered an old-fashioned clock weight, much chipped about the base. Whether this product of

civilization had been used by the Indians or left by the relic hunters must remain a mystery. Aside from this one object, I found nothing that would indicate that this people had been in contact with the whites.

A regular form of burial had been carried out at this cemetery, the bodies all being flexed and laid, face down, in the same direction as the longest axis of the plot, i. e. with heads, in the majority of cases, toward the northwest.

No evidence was found that would indicate the presence here, at any period, of either the Oak Grove or the Hunting People.

Mr. J. P. Harrington informs us that there are records of a rancheria in this locality, known as "Mejmei."

To sum up the limited items at our disposal: a small group of the later Canaliño, dating approximately from the time of the abandonment of Las Llagas No. 1, occupied the site under discussion, up to a period that would have given the padres a knowledge of their presence; the site must have been abandoned almost immediately thereafter, as it showed no trace of the Spanish influence.

### (83) LAS LLAGAS No. 3

When I first visited this site, located upon the western promontory at the mouth of Las Llagas Canyon, the hard, dusty, stock-trampled surface offered little promise. Bits of broken household utensils, an occasional flint weapon, sparsely scattered sea shells and burned stones gave the general impression that the site had served only as an intermittent camp site. Later came a protracted rain and the crest of the mesa was broken by the gang plow. After another torrential rain, the entire nature of the soil seemed to change; it became mellow and easily worked, and great numbers of fragments left by former inhabitants lay washed clean for my inspection. Among these objects were many well worn hammers, indicating that this site had been a favorite spot for artisans. Next in interest were the many fragments of stone vessels; these, together with the accompanying pestles, were well designed and carefully wrought. In one instance a crumbling, primitive metate had come to light.

Over fifty test pits were put down to the yellow, clay sub-soil, these serving to develop the stratification of a large part of the site. The upper soil proved to be intensely black, to depths

ranging from eighteen to thirty inches, the deepest portion being nearest the center. Analysis of this black soil showed it to be largely of vegetable origin, in all probability a forest humus of leaf mold. Imbedded in this stratum, I found traces of large stumps and fallen limbs in the last stage of disintegration.

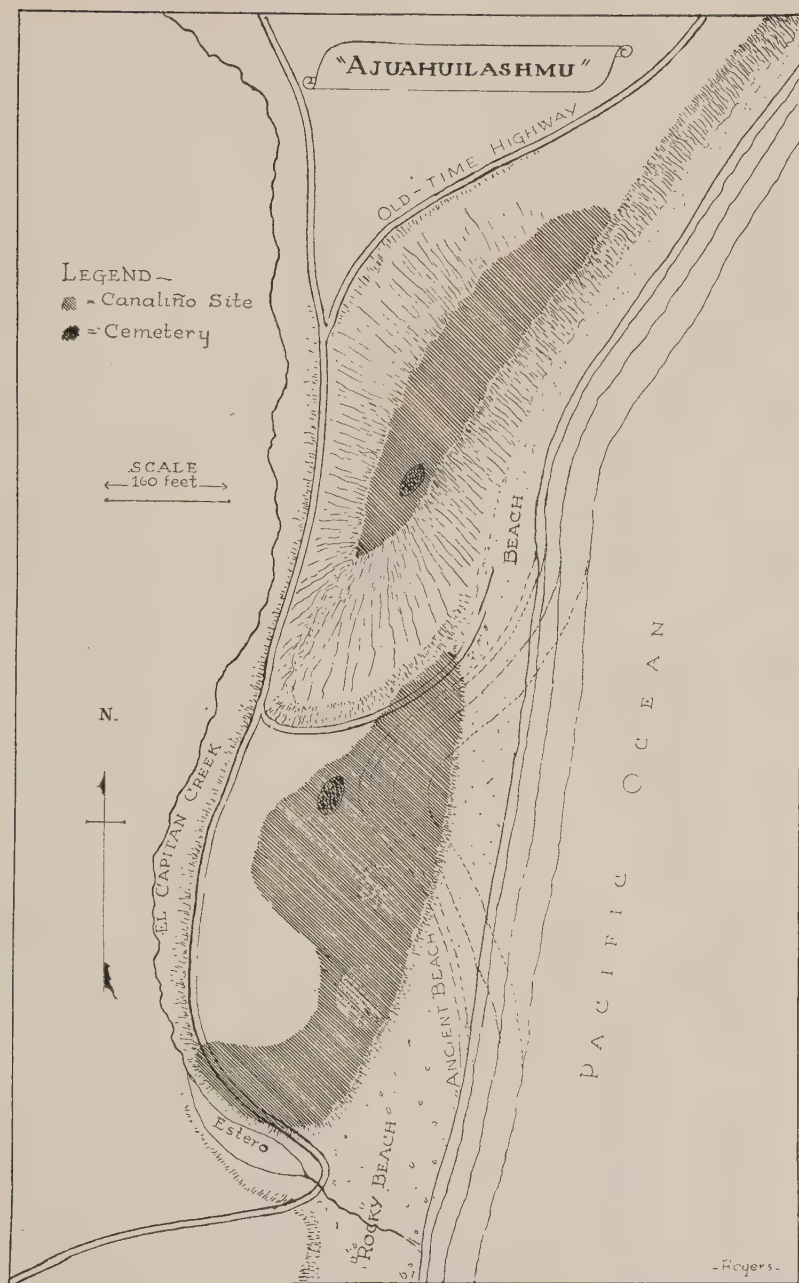
In this black soil, I encountered at all depths sparsely scattered fragments of shell and bone, food debris, and fragmentary stone artifacts. Hammers in profusion continued to come to light. A very few flint objects, drills and arrowheads, found at various depths, appeared to be largely of Hunting People origin. No slightest trace of ashes or charred material was found, although many stones showed the effects of burning. No trace of cemetery or burials *in situ* were found in any of the test pits, although, in three instances, I found fragments of human bones upon the surface.

From these all too insufficient records, I conclude that this western promontory was, in earlier times, covered by an oak forest, and that, at certain periods of the year, the Indians repaired to this grove to gather acorns. At this time they lived beneath the trees in the open, building occasional fires on open hearths, the ashes from which were scattered by the winds and left no trace. Occasionally their food was varied by obtaining shell fish or game. The refuse from these repasts was left wherever discarded and did not form a dump heap as in the established villages. This would explain the scattered condition of the refuse and the absence of hut-circles or kitchen-middens.

Judging from the depth of this deposit, which was formed very slowly by the decay of leaves, occasional dust storms, and the food refuse of transients, this mode of life must have endured for centuries and was probably shared by each of the three races who preceded the white man to these shores. No trace of the hypothetical forest under which this series of conjectural events took place is now to be found upon the surface. It has utterly vanished, as have the peoples it harbored.

(84) "AJUAHUILASHMU" (Harrington)

Eighteen miles west of the city of Santa Barbara, the prominent cape "El Capitan," bearing a historic grove of sycamores, has become a favorite recreational camp ground. It appears to have had an equal appeal to the men of prehistoric times, for,



MAP No. 27



close to the modern tables and barbecue pits, we find abundant evidence that this locality had served the Indians equally well.

Standing at the eastern line of the cape, near the southern extremity, and looking north, one sees a flat tract of land, perhaps two acres in area. This slopes gently toward the northeast; the highest part, near the southern end, is probably six feet above high tide mark, while the lowest section, at the northeastern border, is no more than three feet above the surf. This tract is roughly elliptical in outline, six hundred feet long, north and south, and two hundred and eighty feet wide at the widest part. The entire eastern boundary is washed by the waters of the bay that indents the coast here; the surf breaks upon a series of rough boulders, no sandy beach being exposed. The western bounds of this flat are skirted by a mountain stream that enters the sea directly, near the southern extremity of the site, bordered by a small "estero." The absence of a large lagoon and consequently of tules, is a very unusual occurrence among the Indian village sites of this region.

Over the entire surface of the above mentioned ellipsoidal flat are to be seen the vestiges of camp site debris, and one at first infers that the flat had once been entirely covered by the settlement. A thorough investigation, however, showed that this was not the case. Subsurface exploration was carried on by means of over forty test trenches, which in each case were carried down to soil never disturbed by man. This substratum, in the majority of the trenches, consisted of sea worn boulders and coarse gravel, only slightly above sea level. Along the western border, the spade entered alluvial deposits immediately. A few of the pits were driven down as much as seven feet in this material without encountering any trace of camp material, and we must conclude that this part of the present flat had never been utilized for a camping place.

In sharp contrast with the conditions just described were those found in the area underlain by the boulder formation. Great quantities of camp site debris were found there at all depths. Of this refuse probably the largest percentage was that of molluscan remains. The next in order were those of fish; in places, the scales made up a large part of the accumulation. Many bones of mammals, especially marine mammals,

were present; a few deer remains and traces of birds were found.

In the more protected places, dense, unbroken ash-beds were found, in some places to a depth of over five feet. In other less favored situations, the ash-beds were found separated at intervals by intrusive sheets of beach-sand, boulders or alluvial soil, telling plainly of disturbing visitations of sea-storms, unusual tides or mountain freshets.

While several fine specimens of entire artifacts and many fragments of the same were found, these did not seem to be as plentiful as at some other sites investigated. All, however, fall easily within the cultural epoch which we have designated as the third, or Canaliño, not a trace having been found of either of the two preceding races. The most characteristic artifacts found here were hammer-stones, calking-stones and cakes of fused asphalt. The abundance of objects of this class indicates a great maritime activity here, and a tremendous outlay of time and labor in the manufacture and repair of sea-going craft.

I failed, utterly, to locate the cemetery that must have been attached to this lower section of the settlement. Although I sank trenches into every part of the site that suggested possibilities, each down to subsoil, I found traces of human remains in only three pits, and these were mere vestiges—those gruesome relics found in nearly all of the refuse heaps.

Near the southwestern border of the site are three large boulders projecting above the surface; one, which weighs many tons, rises to a height of five feet. At the time of my preliminary survey, I judged that these had been in place previous to the establishment of the village. In this I was mistaken, for excavation showed that they were only slightly imbedded in the camp refuse and were doubtless left by a torrential storm during the occupancy of the village.

It seems clear that, in very early times, a wooded alluvial knoll rose on the northern side of the mouth of the creek, connected with the shoulder of the promontory by a narrow dike of alluvial deposit, probably overgrown with trees and brush. I believe this is the explanation of the total absence of any deposit of camp refuse along the eastern bank of the creek.

The sheet of sea-worn boulders that lay practically at sea-

level under the entire camp site area, tells plainly of a small cove which, at that time, reached nearly to the creek. This indenture of the coast was the direct result of the powerful back-lash of the surf, as it exhausts itself after passing the cape. This ceaseless action may be observed at the present time from the heights above, and it is easy to realize that, at the time of which we write, each recurrent tide lapped against the narrow, brush-clad dyke.

Around this little secondary cove of prehistoric days, perfectly sheltered by the wooded knoll, the Indians had gathered to cook and eat the harvest of sea food. Gradually the accumulation of camp debris began to intrude itself upon the surf line. Huts could now be erected there, and the depth of over five feet of nearly pure ash in some of the hearths, with no sign of a break in its continuity, indicates that a few at least of the households had been fairly exempt from disturbance by natural forces. Other hearths not far removed from the ones just described show a startling contrast. A bed of ashes that must have taken years to accumulate is found capped by a thick intrusive stratum. Perhaps it is of clay and rough boulders, indications of mountain-bred cloudbursts that drove the neighboring creek out of bounds, destroying sections of the settlement and replacing the homes with its burden of detritus. In other instances, we find rounded boulders and gravel, unmistakably products of sea action, evidence that there had been terrific sea storms that had gone far towards reclaiming the former cove. Intrusive sheets of fine beach sand are occasionally found. These tell of a phenomenon that occurred probably three times during the hundreds of years that the village endured, viz., the occurrence of phenomenally high tides that engulfed nearly the entire settlement.

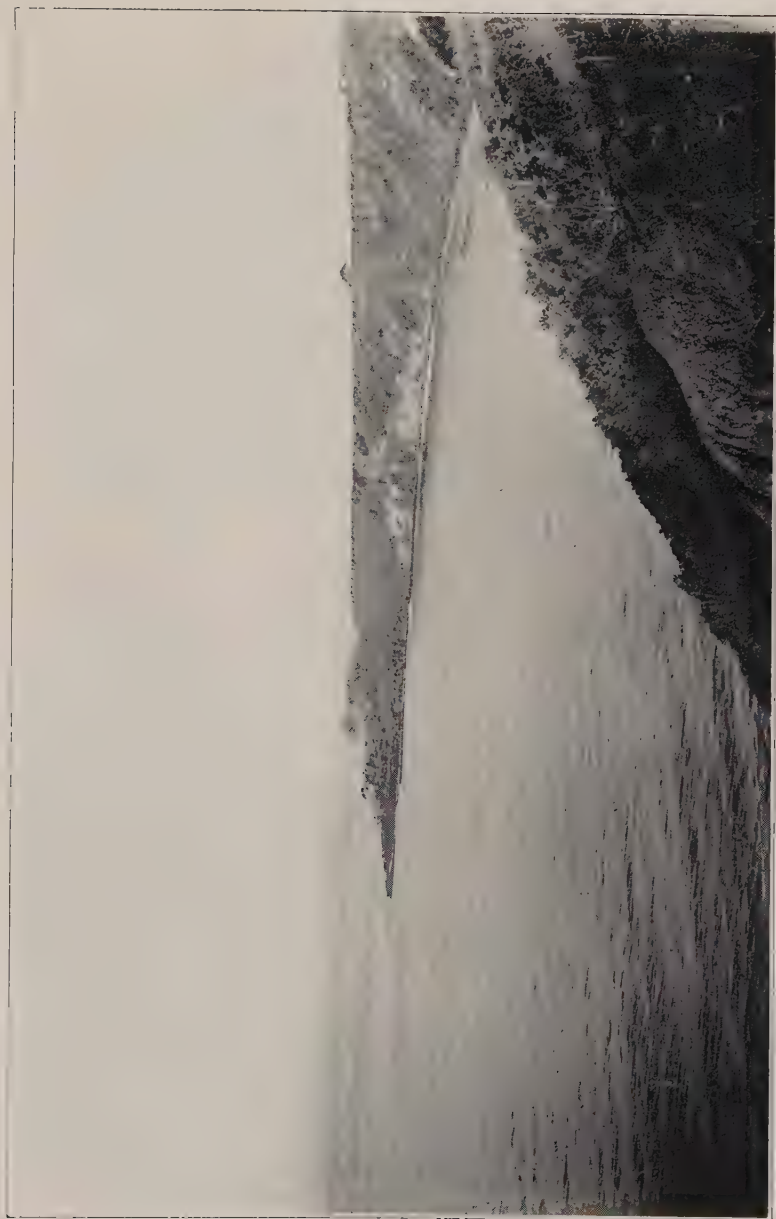
Our imagination can faintly picture the consternation in this quiet nook, when, after the lapse of many years, perhaps centuries, of peaceful existence, the inhabitants, perhaps in the dead of night, found themselves without warning in the midst of havoc that they had only deemed possible in the dim past of their ancestors, from vague traditions of similar visitations. One has but to note the size and weight of the three huge boulders near the southwestern border to realize the force of the freshets.

The physical results of these varied activities are easily read from the soil contents. The accumulation of camp debris, aided by the incursions of extraneous material through natural agencies, gradually forced the line of breakers back from the narrow dyke that bordered the creek bank, until at last the present bounds were reached, and the entire former cove was filled in to the level of the top of the original little protecting knoll.

Rising from the northwestern border of this low flat is the steep-sided shoulder of El Capitan (Plate <sup>22</sup>~~21~~), the most prominent headland for many miles along the coast. Some eighty feet in height, it drops sheer into the sea along its eastern side, and makes a very abrupt drop into the creek on the west, ending in an acute angle towards the south. From this southern point of the headland, a rough, steep trail, or natural stairway, descends by a zigzag course down the shoulder, about three hundred feet to the western side of the widest part of the site upon the flat. I think this trail has changed little since aboriginal times. The position of the headland, sheltered from attack by sea and mountain torrent, and its natural formation have tended to preserve its contour to a remarkable extent. In fact, I believe that, aside from the toll claimed by wind and rain, the lines of El Capitan are practically the same as those that greeted the Canaliño.

Surface accumulations on the flat top of the headland indicate that it was occupied as a section of the village for a considerable period of time. It probably consisted of a single row of huts, which stretched irregularly along the edge of the cliff for a distance of perhaps five hundred and fifty feet. Superficially, the site appears to be widened at the center, giving roughly a narrow-ellipsoid outline. I interpret this to indicate only that the prevailing sea breezes have swept masses of debris beyond the line of dwellings; I could trace no former hut circles on the western slope where this extension of debris occurs.

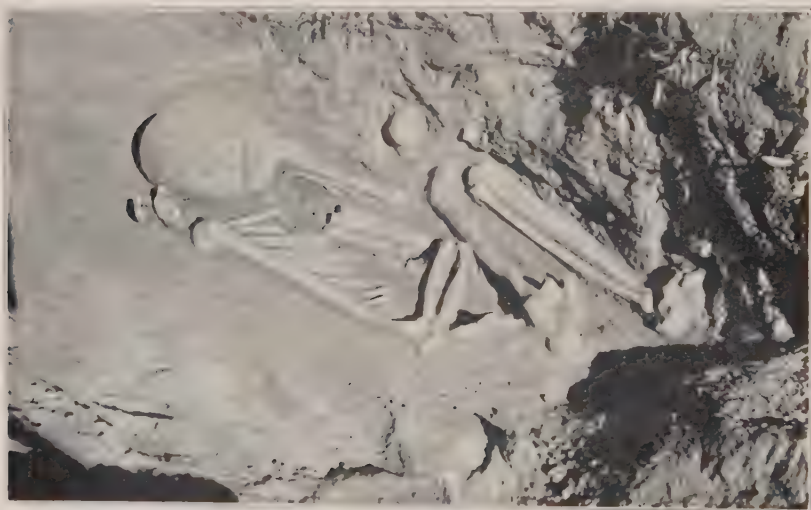
The crest of the mesa has been cultivated for years, and owing to the extreme mellowness of the soil, the exposed situation and the prevailing winds, there must have been a great reduction in the depth of the refuse, as compared with that of former times. It is still quite pronounced, being thirty-six inches in depth near the southern point. The debris is, in every respect, typical of the Canaliño sites. The artifacts, only a few of which



El Capitan Point Viewed from the Northeast. The crest of the high shoulder of land at center of photograph, and the low land at its foot, each are the sites of former settlements of the Indians




The Flat Land in the Foreground Is the Site of the Lower Section of the Village Explored at El Capitan. Upon the crest of the high ridge in the middle distance is the second section of the village



A Medicine Man of El Capitan in Situ. A cluster of Pan-pipes may be seen, held in the right hand, and near mouth

were found entire, are in each instance indicative of a high order of ability on the part of the artisan. The food, judged from the remains, was confined almost exclusively to products of the sea, of which fish was no inconsiderable portion.

No trace of the location of a former dance floor or of a "temescal" could be found. If these important adjuncts were ever absent from a Canaliño village, I should say that it might have been the case in this village. As to the dance floor, there seems to be, at present, no place that would have been available, as the width of the mesa was hardly sufficient to contain the enclosure. The absence of a temescal on this height may have been due to its great distance from the nearest cold water, fully seven hundred feet away, over a steep and tortuous trail.

Upon my first arrival, many fragments of human bones were to be seen upon the surface near the southern point of the mesa. These bones had evidently been brought out by deep cultivation. Excavation of this locality proved it to be the site of a former small cemetery, elliptical in outline, but largely destroyed by former excavation, cultivation and erosion. Nevertheless I succeeded in locating several undisturbed burials. These lay at various depths, ranging from ten to thirty inches below the surface. More than half of them lay with heads pointed to the southwest, others pointed to the northeast, while a few lay in other directions. All were flexed, and the majority lay with faces down. Some of these burials proved to be of extreme interest. One in particular, a recumbent figure holding in its bony fingers a cluster of four of the instruments formerly known as "whistles," illustrated the use of the "pan pipes." (See Plate ) This occurrence will be spoken of more at length in another chapter.

Exactly what relationship the two sections of this settlement bore to each other is largely problematical. There can be little doubt, however, that they were very closely affiliated.

#### CORRAL

About twenty miles from Santa Barbara, and one and one-half miles west of El Capitan, the Coast Highway, before crossing a deep ravine, passes through a cut in its eastern bank. The upper strata exposed on either side of this cut display the refuse of former occupants. In places, this deposit reaches to

a depth of thirty inches. This, however, should not be taken as the greatest depth to which it ever attained, for erosion has been very pronounced upon this ridge. Moreover the lower stratum of the refuse shows every mark of great age and has doubtless undergone great reduction through the process of leaching. The lower, very ancient stratum contains many metates and manos of the Oak Grove People.

In 1928, the laying of a pipe-line necessitated the opening of a trench through the widest remaining part of the site. This activity disclosed the location of a cemetery of the Oak Grove People near the center of the visible debris. Massive metates and accompanying manos were found, covering vestiges of the nearly vanished skeletons. A few crudely chipped flint knives and many well-worn hammers were also present.

The upper stratum of this site appears to indicate that the Canaliño occupied it for a time. Several artifacts are present in this layer which show a much higher order of workmanship in their creation than those from a lower level.

#### ENVIRONS OF REFUGIO BAY

Twenty-two miles west of Santa Barbara, a small cove, Refugio Bay, indents the coast line. This indenture, though small, is the most pronounced for many leagues along the shore line in either direction. The early annals record, among other romantic incidents that center about it, that Bouchard's piratical brigantine anchored here, while his blood-thirsty crew ravaged the neighboring haciendas for beef and treasure.

Facing the bay upon the north is the throat of Refugio Canyon. The mountain torrent with its burden of boulders and other debris from the heights above, meeting the irresistible battering of surf and tide, have, in the course of ages, heaped a great barrier of the coarser material along the margin of the bay. Through this barrier, in time of freshet, the torrent plows its way to an outlet. At other times, the steady industry of the tides fills the crevasse, and, during heavy sea storms, the breakers leap the barrier to form a lagoon of brackish water, a typical "estero," about the pent-up mouth of the creek. This is the cycle of natural events that have taken place since time immemorial, and these are the agencies that have created this indenture of the coast line.

Throughout prehistoric and early Spanish times, the estero was of large extent, an almost impassable wilderness of tules, flags and willows, threaded by narrow bayous of stagnant water, which extended many rods north of the present highway. During recent years, the very general plowing of the hillsides adjacent to the canyon and the consequent increase in the quantity of alluvial debris, have filled the former estero to above tide level over the greater part of its area; hence a large portion of the former morass is now a cultivated field and a pleasure resort. Occasionally, very high tides, accompanied by stiff winds from the sea, still cause partial inundations.

About the borders of the ancient marsh, in aboriginal times, clustered several Indian rancherias; the sites of three of these were quite thoroughly explored, a summary of the results being presented in the following pages. The three sites are designated as No. 1 (the eastern), No. 2 (the western), and No. 3 (the southern). They are so widely separated as to preclude the possibility of their having been sections of one village.

#### (86) REFUGIO No. 1

Of the three villages that faced Refugio Bay in ancient times, this was probably the smallest and undoubtedly the most strikingly situated. Skirting the eastern side of Refugio Canyon and lying between it and a much smaller canyon to the east, is a lofty foothill. This hill dips at a steep angle toward the sea and ends in a rather acute point of land, about forty feet above sea-level and overlooking the eastern reaches of the former great estero.

It was upon the apex of this point that a small group of the Oak Grove People, the people of the first culture, established themselves, apparently amidst the many boulders that then capped the summit. I found imbedded among these boulders and covered by a heavy calcareous crust, several fragments of the crude flat metates and oval manos, and a few roughly made stone "sinkers," notched at the end. All displayed evidences of extreme age. One trace of a burial was found, fragments of an archaic skull, imbedded in the stubborn, calcareous formation.

At the time of the occupancy of the people represented by these frail reminders, the bay, if it existed at all, indented the

shore line but slightly, so that the beach was at a considerable distance from the village. We may also assume that a heavy forest of live oaks clothed this hill in times past, making a typical site for a settlement of the Oak Grove People.

How different is the prospect today! The conjectural oak forest had probably disappeared before the advent of the Spaniard. Around the southern and western base of the point, in early days, wound the first coast "camino," bearing the creeping "carretas" of the first white colonists. At a much later period, the Southern Pacific Railroad drove a deep cut through the point, a short distance from its apex, and, still later, the Coast Highway made another similar cut, paralleling the first only a short distance away on the landward side. These were the topographical features, when, in February, 1926, I made my first survey of the locality.

Superficial examination of the crest of the above described point of land disclosed a well defined deposit of camp refuse on the ridge left between the railway and highway cuts. This material amounted to only a trace upon the highway side, so that we may assume that little was destroyed by the operations there. On the other hand, we can trace deep exposures along either side of the railway cut, that tell plainly of its intrusion through the very heart of the former village site. Between the southern boundary of the right-of-way and the southern point of the hill, there still remains a portion of the surface that has not been subjected to engineering operations, but even here I found evidences of great changes in the superficial aspects.

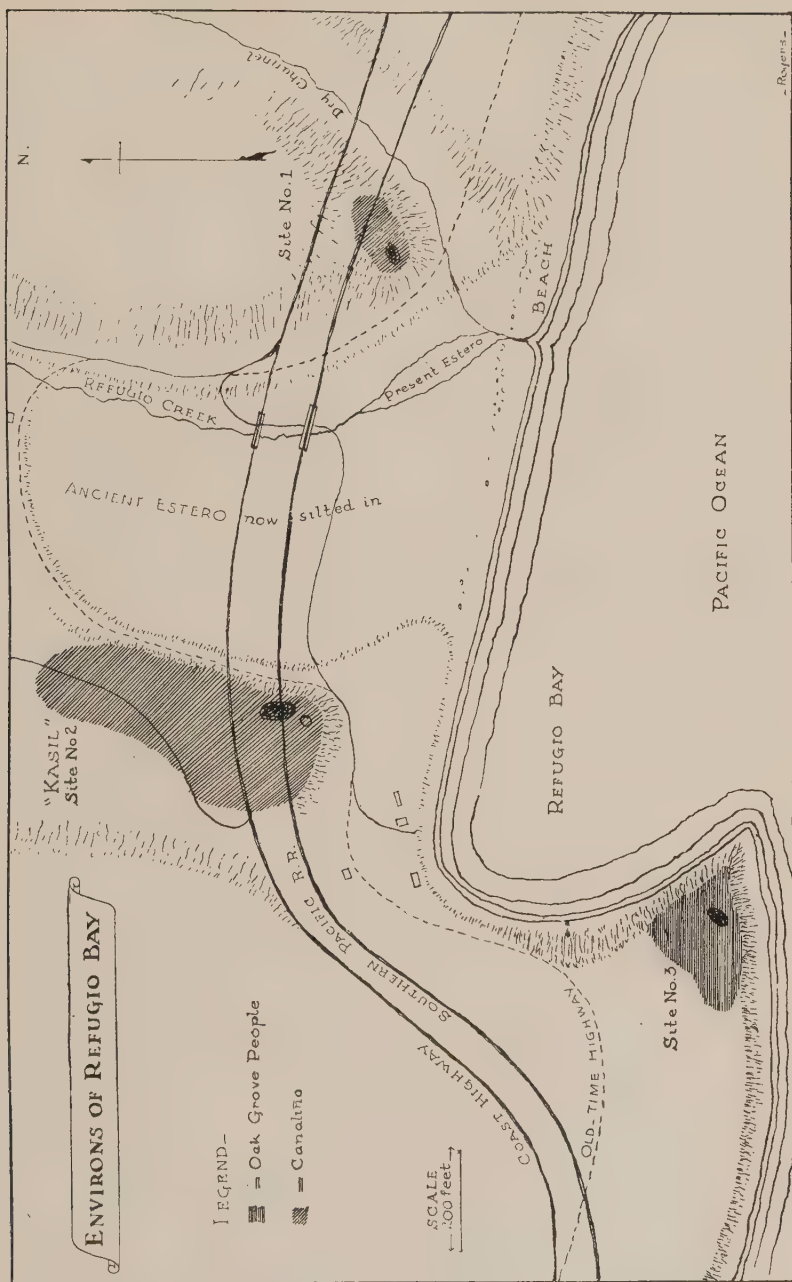
Between twenty-four and thirty inches of characteristic, third culture, camp-site debris still remained, although the site, exposed to all the storms from the sea, had suffered constant erosion for many decades. This modification of contour had been accelerated in recent years by cultivation, which had brought many of the rocks of the original surface again to light. Scattered among these were fragments of well-made slender pestles and pieces of artistically wrought bowls of hard porous stone. These had symmetrical flat rims, remarkably thin walls, and in some cases a decidedly decorative outflare. In other words, they were very similar to those found in the Santa Ynez Valley, and very dissimilar to others thus far found along this coast. Not a few



Mound at Right of Center of Photograph Bears All That Remains of Refugee  
No. 1, with Cemetery at Crest



View of Rotundo No. 2 from the East. The car stands near the center of the slope, which extends south beneath the present grade of the highway and railroad



MAP No. 28



fragments of human bones and scattered wampum were to be seen upon the surface, indicating the proximity of a cemetery.

A systematic exploration of the entire remaining portion of the site by means of extensive trenching brought fair results. The burial plot was found near the southwestern extremity of the village, on the outer point of the hill. It was about forty-five feet long by twenty-five feet wide, the longest diameter corresponding in direction with the general direction of the village. This small area was thoroughly explored, and I believe that every remaining burial was examined. These were thirty-one in number and all were quite near the surface, the majority of them much disturbed by deep cultivation. Natural erosion, aided by cultivation, has produced the effect of apparently shallow interments, but I believe that they have never exceeded twenty-four inches in depth.

A remarkable dearth of accompanying artifacts was noticeable in these graves. About half of the skeletons were decorated with a few beads or ornaments. A few of the males had with them a small number of well-made flint weapons; these, in the majority of instances, were broken at the base, as though at the time of burial they had been snapped from the shaft.

Only one perfect stone vessel was recovered, a rare, boat-shaped type made of steatite. Two very well-made pestles were also present in the graves. Other vessels, including those of steatite, were found broken. Although many of the bones were broken, the remarkable state of their preservation was a noticeable feature. There appeared to be no choice of direction in placing the body. All, however, were flexed, and the majority lay with faces down. I feel reasonably sure that this cemetery, previous to my advent, had never been touched by white men, except through deep cultivation.

After exhausting the remaining possibilities of the site without marked results, an extensive area of the original surface of the hill was laid bare, near the outer (southwestern) point. This disclosed a remarkable record of exposure and erosion, which had resulted in dissolving and solidifying the ancient refuse heap within the interstices of the boulder-strewn surface. At a much later date, the same place had been chosen by the Canaliño as a camp site, although it had never attained great size, its elliptical borders extending only one hundred and fifty

feet northeast and southwest, with a width of no more than fifty feet. If there had ever been any occupancy of this hill by the Hunting People, I failed to find evidence of it.

(87) REFUGIO No. 2

(“Kasil”)

A first glance over the surface of the site to be considered would probably give not the slightest suggestion that it had once served as a location for a teeming Indian village. However, it had been pointed out to me by old residents as the place from which they had picked an occasional arrowhead or bead, and an early reconnaissance convinced me that at some period of the past it had been occupied, for a time at least, as a village site. A brief account of the vicissitudes through which this particular plot of ground has passed during the last century and a half, will give an idea of the difficulties overcome in its exploration.

We first have definite records of this locality in the early days of Spanish occupancy, when the immense “*Rancho Nuestra Señora del Refugio*,” held by the influential Ortega family, included this and many adjacent square miles of territory. Over this immense domain ranged thousands of cattle which, in their daily treks to the salt licks on the shore, passed over the site of the deserted village.

As though the devastation wrought by these passing herds was not thorough enough, their place was taken later by great flocks of sheep, which made this their favorite pasture ground and for years were yarded upon the exact location of the one time *rancheria*.

After the passing of the cattle and sheep, modern agricultural methods attacked the hillsides with plow and harrow, and the loosened clay and rocks were carried to the lower levels by winter rains, filling in the ancient estero with the debris and covering the ancient village site with a thick mantle of the same material. In very recent times, this superimposed stratum has been broken by the plow and pulverized by the disk, and planted to a young walnut grove.

These activities seem sufficient to obliterate the last trace of primitive man's residence here, but the story of the devastation is not yet complete. The Southern Pacific Railroad has driven

its right-of-way, sixty feet in width, across the southern end of the ancient village, occupying nearly its entire holdings with a heavy fill. Beside it, across the widest part of the ancient site, runs the Coast Highway, one hundred feet wide, with a still more massive fill. These two adjoining fills cover one-third of the entire area formerly occupied by Refugio No. 2. It is as though nature and the white man made every effort to destroy all traces of the primitive race that had once occupied this site.

The effort, however, has not been wholly successful, for, despite the meager evidences now remaining upon the surface, after turning back the superimposed strata of detritus and the accumulated ordure of sheep corrals, and tracing the deeply eroded cattle trains, I found a dense bed, some thirty inches in thickness, of the black camp-site soil so characteristic of the habitations of the Canaliño. This soil was filled with fragments of shells and bones and other refuse from the food. Many fragments of artifacts were found, pestles, stone pots, mortars, hammers, basket and cooking stones, many asphaltum-smeared calking stones, and a few personal ornaments and arrowheads, all indicative of the people of the third culture. Not a trace of the two preceding cultures was found.

A great number of test pits were put down and the boundaries of the former village definitely determined. It extended in a general north and south direction some five hundred and fifty feet, the southern part adjoining the widest part of the ancient estero. It followed the western shore of the inland extension, separated from it by a narrow strip of territory that was never occupied and which I believe was a thick willow barrier, similar to growths that exist in the vicinity to this day. The northern half of this site was no more than one hundred and fifty feet wide, and occupied two distinct terraces, the lower only a few feet above the level of the slough, the higher some ten feet above. I believe that each level was occupied by a single, straggling row of huts. From the great numbers of calking stones, lumps of asphaltum, and grooved sinkers found upon the lower terrace, I take it that this was the landing place and repair shop for the great canoes.

At about its center, or slightly north of the highway boundary, the site widens abruptly to over two hundred feet. This broad, southern half was probably the seat of a very con-

gested settlement. Skirting the entire site upon the northwest, west and southwest rises the steep side of a crescent-shaped, lofty foothill that acts as a protection from all disagreeable storms.

A very closely occupied cemetery was situated upon the southwestern brow of the southern extremity of the site. Only a very narrow fringe of this burial plot was open to inspection, as the heavy railroad fill that covers the main portion prevents its exploration. Immediately below this cemetery, towards the south, were the ruins of a "temescal." A mass of charred willow boughs interspersed with beds of ashes and flanked by a segment of rough boulder wall, were unmistakable indications of the structure, though long cultivation had almost eliminated it.

As we attempt to visualize the ancient life at this point, we can but admire the judgment that selected such an ideal location. The site faced a quiet ocean inlet that teemed with sea food; its borders were fringed by a reedy marsh and a thicket of willows which gave the Indians all that was needed for the construction of their dwellings. The site was protected from all adverse winds by sheltering hills. Moreover, there was the wide corridor of the canyon, leading directly into the mountains with their wealth of game and acorns.

The abundance of calking stones and lump asphaltum, along the lower terrace of the site were eloquent of active boat building. These boats would have been amply sheltered in the many sluggish waterways that meandered through the great marsh. If additional evidence were needed of maritime activities the presence of the steatite fragments that littered the surface was proof of frequent contact with the Channel Islands, which are in full view from the entrance of the bay.

I found, at this site, fragments of very thin-walled, medium sized bowls of hard, porous, volcanic rock, with a peculiar rim which is very characteristic of the bowls from the rancheria that formerly occupied a site near the present town of Santa Ynez. Those acquainted with the back country tell of an ancient, well-worn trail through the mountains, connecting Refugio and Santa Ynez, which are separated by twelve miles of rugged territory. Apparently there was intercourse between these two settlements, an intercourse that I have not positively established in any other instance.

Several unsolved problems presented themselves here. I have been unable to bridge the hiatus of time that unquestionably exists between the disappearance of the Oak Grove People from sites 1 and 3, approximately estimated to have occurred "some time before the Christian era," and the advent of the people of the third culture, at a period probably post-dating the year 1000 A. D. What took place around this charming little cove during those intervening centuries? Did the elusive people of the second culture reside here during the interim? If so, at what place? I found no suggestion of their presence here.

From the early chronicles we learn that the Indian rancheria of "Kasil" was located at Refugio Bay and this also is the designation given on Kroeber's map. A process of elimination will determine which of the three village sites was thus named. Site No. 1 was too limited in importance to have been considered. Site No. 3 had been abandoned for ages before white chroniclers arrived, and they knew nothing of its former existence. Hence it is easy to identify the important central site, No. 2, with the recorded "Kasil."

#### (88) REFUGIO No. 3

The village site upon the crest of the headland to the west of the entrance of Refugio Bay, which we have termed Refugio No. 3, on our first visit gave every promise of being of great interest. So far as I have been able to learn, no one had ever suspected the presence here of a rancheria site. Even the owner was extremely skeptical, saying that as long as he had owned and cultivated the tract he had never noticed any evidence of former occupancy.

Systematic exploration began on March 11, 1926. The site is practically flat; the part formerly occupied by the village is roughly triangular in outline, resting upon the extreme southeastern angle of the promontory. The northeastern boundary, facing the bay, is marked by a line of low cliffs that rise from a narrow beach. This boundary may have remained in practically its present condition since early times.

The present southern boundary of the site, extending approximately east and west, is marked by a rather low cliff that drops sheer, some forty feet, to the jagged sea-washed rocks at the foot. These rocks are exposed at low tide. During high tide the surf

breaks directly upon the cliff which, being of rather unstable, stratified rock, set at a steep angle, is being steadily undermined, large sections from the cliff above frequently slipping into the sea. (See Plate ~~81~~<sup>82</sup>.) This has, in the course of time, made a great change in the contour of the coast here; some of the alterations of more recent times can be easily traced.

The rancheria site under discussion once extended much further to the south; probably as much as one hundred feet of the original width of the plot along the southern border has been obliterated, leaving a thick section of the camp debris exposed along the crest of the cliff. The most recent change here is directly traceable to the severe earthquake of June 29, 1925, when eye witnesses beheld great slabs from the face of the cliff hurled bodily into the sea.

To the northwest, after a brief extension of the flat upon which the village rested, the foothills rise abruptly to a considerable height. The triangle occupied by the present remains of the village measured three hundred feet along the southern base, and two hundred and fifty feet along the northeastern and northwestern borders, respectively. Over the entire area, one may see traces of food debris, all of small size, the much decomposed residue of heavy shells. One seeks in vain for entire specimens, even of the most massive types, and not a trace remains of the more delicate shells.

The upper stratum, of undoubted artificial origin, extends to an average depth of thirty-four inches. The upper twenty-four inches are of very mellow, rich, black soil, containing a fair percentage of the above mentioned shell fragments, all disintegrated and of a chalky character.

At the twenty-four inch level, the texture of the soil undergoes a complete change. The upper surface of this substratum is coated over and cemented together by a hard, calcareous formation, closely approximating, in general appearance, the ancient, fossilized kitchen-midden found at Burton Mound in 1923. There can be little doubt that its origin may be traced to the same cause, viz., the gradual disintegration of all organic material in the great accumulations of refuse about the camp-sites and the leaching of the winter rains. These dissolved the mineral content and carried it to lower levels where, meeting a nearly impervious stratum, the materials solidified into a mass almost of the tex-



Cultivated Field in Middle Distance Holds the Entire Area of Refugio No. 3 within Its Bounds. The excavations in the cemetery are faintly shown near angle, below center of photograph



Southern Rim of Refugio No. 3, Showing Progress of Erosion

ture of stone. Simple as the process appears, it required a vast period of time for its consummation. In some similar situations, even where we are fairly certain that the site had been occupied at least one thousand years, the above-mentioned process has not advanced to a noticeable degree, while here it is practically complete.

Over eighty deep test pits were sunk, covering the entire remaining site, and practically the same stratification was found throughout. Artifacts were found in only a few of these pits. Three exceptions to this general rule, all closely adjacent, induced me to develop the adjoining territory more systematically. A plot of ground three hundred and thirty-seven square feet in area was cleared to the original surface at the thirty-four inch level.

Within this limited plot was found a series of eighteen graves that were in many ways remarkable. They were all placed at a uniform depth and all covered with a pavement of massive stones, many of these being artifacts. (See Plate 53.) Practically no small artifacts in the nature of ornaments, weapons or utensils were found, the only exceptions being a few crudely fashioned flint knives, and one greatly disintegrated stone ring of small size. Perhaps the most striking and constant phenomenon in the exposed cemetery was the almost complete disintegration of the skeletons, of which only fragments of the more massive bones remained. The graves and the superimposed cairns were enveloped by an unbroken stratum of hard, calcareous cement. It required almost the methods of a quarryman to remove the relics imbedded in it. These artifacts were chiefly the crude metates, greatly disintegrated, that we have learned to associate with the primitive people of the first culture, and in every case were heavily coated with a calcareous precipitate.

A much smaller percentage of the artifacts were of a slightly advanced type, and these show but little of the above-mentioned incrustation. They represent, I believe, grave markers of a much later date, there probably being an interim of at least one thousand years, probably much more, between the two types of markers. Both types, I believe, belong to the first cultural period, which undoubtedly persisted here for many centuries.

Throughout the entire process of developing this site, in spite of the most painstaking screening, not one bit of evidence was

found of the presence here, at any time, of representatives of either the second or the third culture people, nor, consequently, of any established settlement upon this headland for many centuries preceding the advent of the whites.

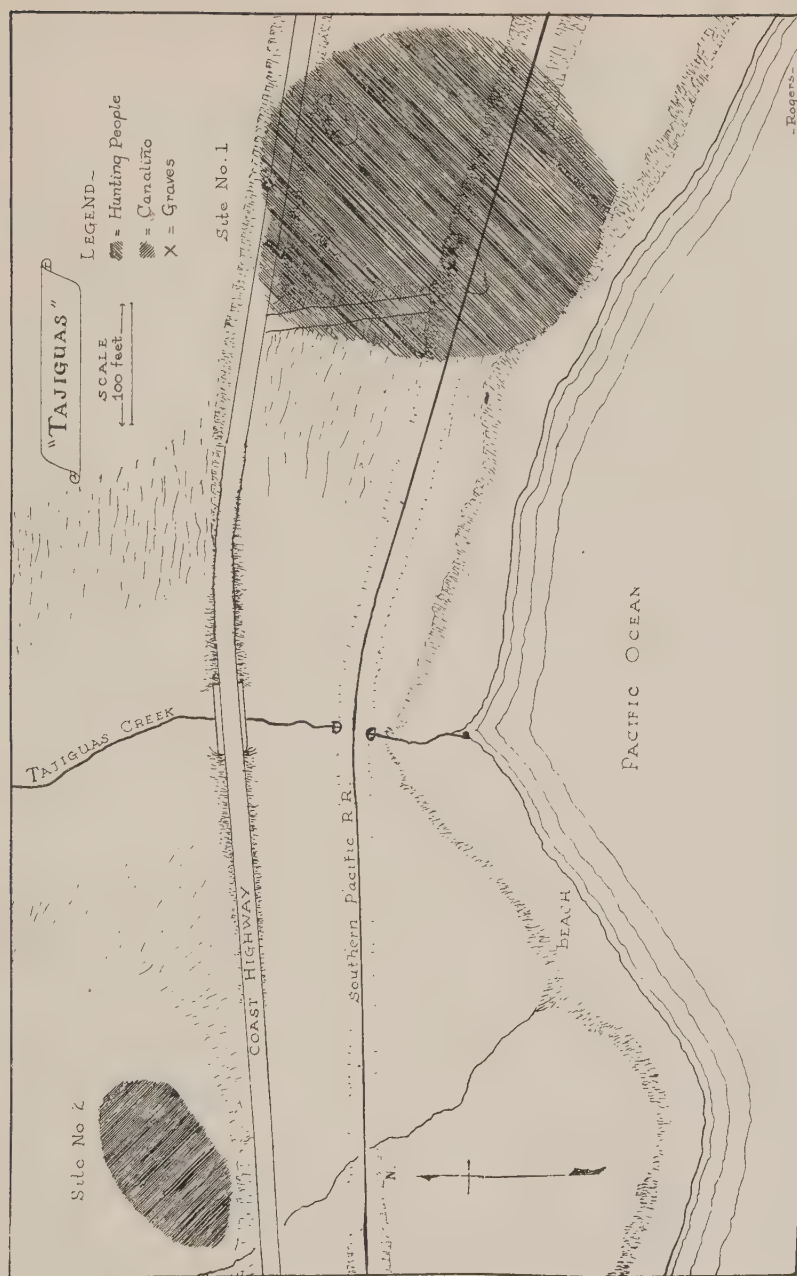
One can but wonder at this complete abandonment, after such a long period of occupancy. I have but one suggestion to offer as a possible explanation. If the spring that now trickles from the foot of the bluff to the north had ceased to flow, the lack of fresh water might have made existence at this site too difficult.

As an instance of the broken threads that one frequently encounters in these investigations, fragmentary human remains were found projecting from the upper stratum of the face of the cliff, where erosion had been most pronounced. This has led me to believe that the main part of the cemetery occupied a portion of the mesa that has long since been claimed by the sea.

(89) "TAJIGUAS" No. 1

About twenty-five miles up the coast from the western outskirts of Santa Barbara, the deep throat of a canyon opens upon the sea. From time immemorial, this canyon has been known as "Tajiguas," a name manifestly of Indian origin and believed to mean "The Basket." The contour of the upper reaches of the ravine, where the narrow throat of the canyon abruptly widens into a great, mountain-walled amphitheatre, perhaps suggested the name.

Upon the crest of a high promontory that rises abruptly to the southeast of the mouth of the canyon was once located the village under discussion. Modern grading activities have greatly modified the original nearly circular outlines. At least one-half of the former site, towards the southwest, has been entirely destroyed by a deep cut made by the Southern Pacific Railroad. To the northeast an equally deep cut of the Coast Highway has destroyed a section, and to the west an old road, now abandoned, has claimed its share in the havoc. Of the original circular area, which had once measured two hundred and seventy feet in diameter each way, there now remains only one-third. This fragment, located between the highway and the railroad, is about two hundred and sixty feet in length, with an average width of seventy feet. It appears to have been long occupied, the refuse reaching to the rather unusual depth of six feet.



MAP No. 29





"Tajiguas" No. 1. Escarpment on northeast side, caused by highway cut. Light colored stratum above car is the lower, hardened, most ancient refuse



The Site of "Tajiguas" No. 2 Is Shown by the Gray Ellipsoid, to the Right of the Middle Distance, Above the Canon

There is very little evidence of relic hunting at this place, but the extent of the havoc wrought by modern engineering activities is incalculable. Judging from the probable location and the fact that a few random graves were found at the side of the cut, I assume that the village burial plot was almost totally destroyed by the railroad grading. The same is probably true of the former temescal and the dance floor.

A very few artifacts and a limited amount of skeletal material were secured. I feel fairly safe in saying that the bulk of the material found here is the result of Hunting People occupation, although a prolonged search might reveal objects left by the Oak Grove and Canaliño Peoples, especially by the former.

(90) "TAJIGUAS" No. 2

As is not unusual in such locations, a companion village to that just described was located at the opposite side of the canyon, some forty rods to the northwest of the described site. This I have called Tajiguas No. 2. It is about one hundred and fifty feet long, east and west, by eighty feet wide. No excavating was done here, but surface debris indicated that it may be a camp site of either the second or the third cultural era. I believe that this site was occupied for not more than a century, perhaps much less, in striking contrast with that on the eastern promontory whose deep stratifications indicate a continuous occupancy for many centuries, perhaps for thousands of years.

(91) LA QUEMADA

Twenty-six miles west of Santa Barbara the rather inconspicuous La Quemada Canyon enters the sea. This breach in the sea cliff also serves as the outlet of a small arroyo that originates in the mountains to the northwest. About the mouths of these two canyons is a typical, tule-grown estero of small extent. To the west of this estero runs a low ridge of land, facing the sea upon the south and sloping sharply downward towards the north to the floor of the canyon. Along this protected slope may be traced the elliptical outline of a small village site, probably not more than three hundred feet long by half as wide. Fifty years ago the Frenchmen, Pinart and Cessac, worked here industriously. I did no excavating here, but I believe that the site belonged to the Canaliño period.

## (92) PARK

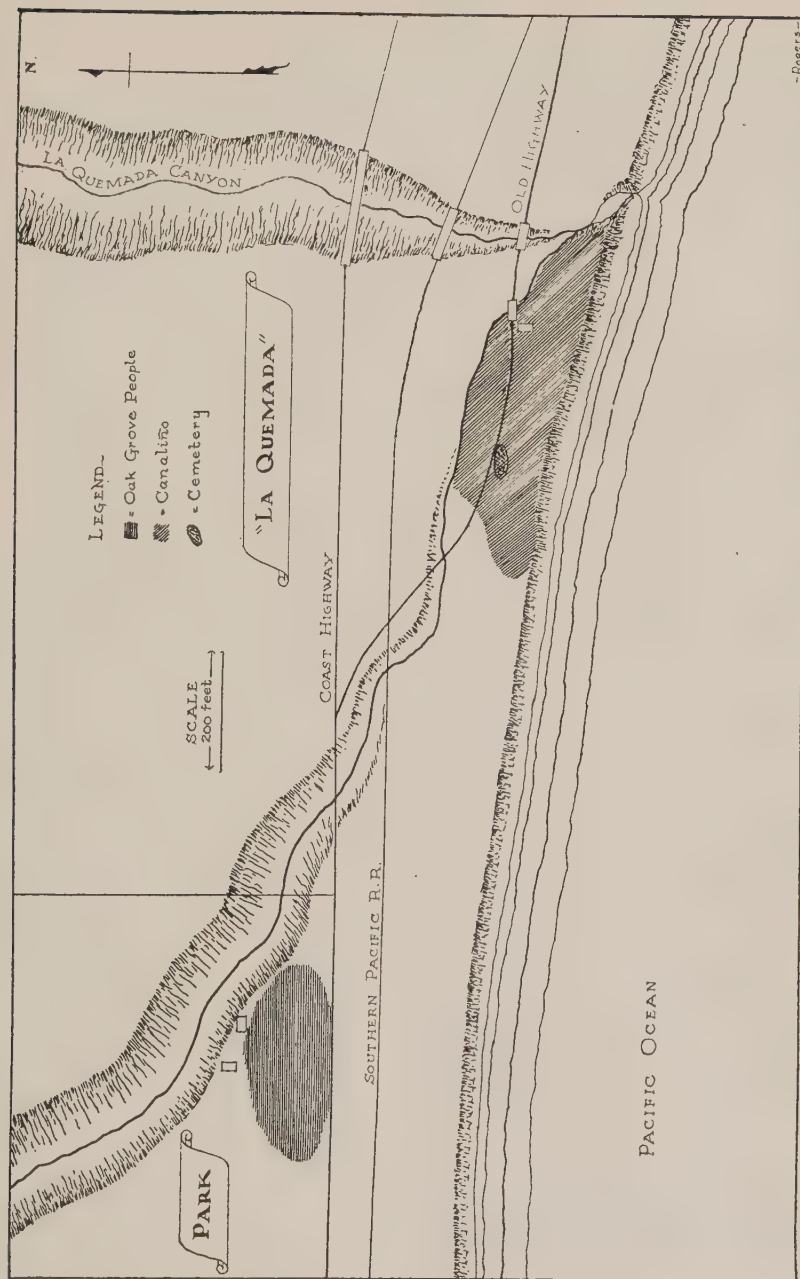
In my notes on the rancheria of La Quemada, I made mention of a small canyon that entered from the northwest. Upon the southwestern bank of this canyon, about one-third of a mile from its mouth, is a small elliptically outlined village site of what I judge to be the Oak Grove People. No excavations were made here; my conclusions are based entirely upon the results of several casual and superficial surveys.

## (93) PIEDRA DE AMOLAR

About twenty-eight miles west of the city of Santa Barbara, between the Southern Pacific right-of-way and the ocean, and occupying the crest of the loftiest headland to be seen for miles, is an interesting rancheria site, which, according to local tradition, was the original source of quantities of the prehistoric relics that are scattered about the countryside. At present the site itself is heavily covered by a dense growth of brush among which Coyote-brush, Sumac (*Rhus integrifolia*) and *Solanum* predominate.

Beginning at the landward edge of the village and extending well into the foothills, is an extensive forest of scattered live-oaks. At the eastern border and about one hundred feet from the edge of the sea-cliff, where the village drops away abruptly, are two large, earthbound boulders, each having in its upper surface a mortar, at least eight inches deep. These are at the brink of a canyon.

The site, resting upon the base of a lofty foothill which borders the ocean, outranks in altitude any coastal village between the Rincon and Point Conception. On account of its height and its advanced position on the coast line, it had in view practically every village that formerly flourished between the great Goleta Slough and Point Conception, as well as a perfect view of all the waterways leading from the three principal Channel Islands to the mainland. This location would in itself have given prominence to the village. Proof of its importance is found in the size of the refuse-strewn site which, roughly triangular in outline, has a base next the sea approximately four hundred and fifty feet in length and extends inland two hundred and fifty feet. Over this entire area are to be found vast quantities of camp



MAP No. 30





The Crest of This High Headland Holds the Site of "Piedra de Amolar"



Northern Wall of Tecolote Cut. Location of finds of artifacts mentioned p. 257 was at base of stratum of boulders, about five feet above head of figure and above small bush back of figure

debris of considerable depth, and other evidences of long and intensive occupancy.

The settlement had very poor facilities for maritime activities. A coast which was bordered for a long distance by high, perpendicular cliffs, where the surf broke over steep shingle, almost precluded the use of the great canoes so common in some villages. Bordering the eastern flank of the village site is a deep, narrow gorge, the "Cañada Piedra de Amolar," at the bottom of which babbles a small mountain stream which breaks through the cliff to the ocean, with only a trace of an estero. This small, shaded brook would have furnished abundant water for the domestic use of the village but was too small to admit a boat. As there was no other place in the vicinity where canoes could have been safely stored or repaired, I believe that this particular group of Indians were not primarily dependent upon the sea for their maintenance, but looked to the land for their food and other supplies. During the week that I devoted to the site, I found no trace of fish remains and very little shell refuse. I might add that not one vestige of steatite was found; the lack of sea-going craft or adequate landing facilities for visiting boats precluded intercourse with the islands, the only known source of steatite for this region.

At the time of my first visit to the site, the most interesting artifact to be seen lay upon the extreme southeastern point of the promontory. This well known site marker, which lay flat and flush with the surface of this angle of the mesa, was a diamond-shaped slab of very gritty, abrasive sandstone, thirty-two inches long by sixteen and one-half inches wide, and three and one-half inches thick. The corners were all smoothly rounded. Upon one smooth, flat surface, which I will term the face, from the fact of its having been exposed when I first saw it, there were thirty-six deep, well-worn, slightly curving grooves. These were irregularly distributed, running in many directions, although principally in a general lengthwise course; in some instances they crossed. Upon the opposite side of the slab were seventeen similar grooves.

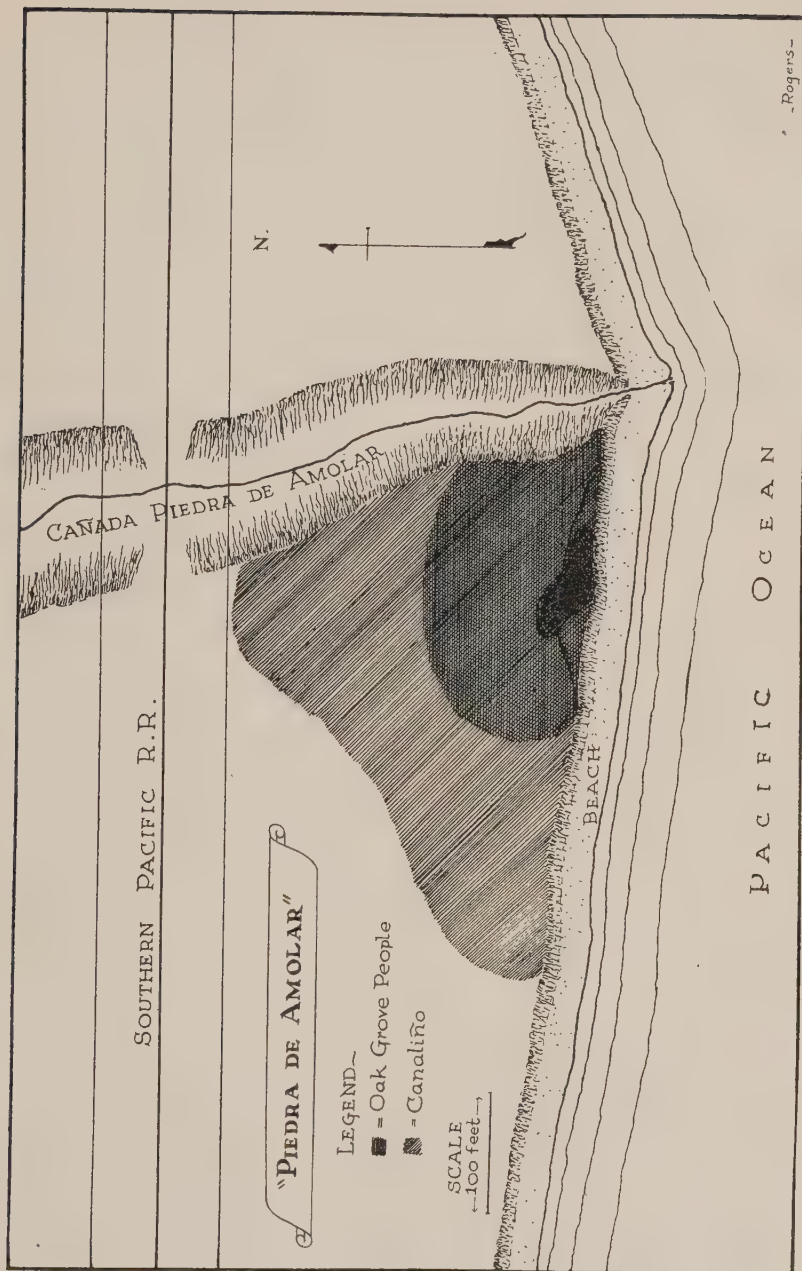
This object was, undoubtedly, a shaping stone for the production of bone and shell artifacts, and at the time of my first arrival was probably *in situ*, although a small calcareous deposit on one side, like that frequently seen upon authentic grave-

stones, may indicate that at one time it had served as a grave marker. However this may be, the oldest inhabitants of the region are unanimous in asserting that it had occupied the position in which I found it since very early days. It is probably from this striking artifact that the gorge, in early days, took its name "Cañada Piedra de Amolar," the Abrading-stone Canyon. I succeeded in salvaging this object and installing it in the archæological room of the Santa Barbara Museum of Natural History.

The most noticeable feature of the site was the unique location of its cemetery. Extending from the southeastern angle of the headland to one hundred and fifty feet west, and curving slightly to the north at the center, is a yawning crevice that appears to reach down the entire depth of the cliff, probably the result of some prehistoric earth movement. A portion of the cliff, over one hundred feet in height and weighing many thousands of tons, is separated from the parent headland by a crevice that in places will admit the descent to unknown depths of a full grown man. The entire section appears to have dropped a short distance, forming a distinct ledge, much higher at the eastern end than at the western. This ledge is narrowed to a point at each end and is about thirty-six feet wide in the center. It is at this widest portion, in some twenty-four inches of fine debris blown by the wind from the camp above, that the Indians chose to bury their dead.

The cemetery extended about sixty feet east and west. Every inch of this area appears to have been dug over, time and again, by relic hunters, and little in the way of exact data as to its original condition could be secured. Nothing in the way of artifacts was left except stray beads, countless fragments of broken stone bowls of a type indicative of the presence of the Hunting People and a few of the highly finished utensils of the Canaliño.

Broken pestles and flint weapons, also characteristic of the two cultures, were found scattered throughout the tailings. Of the greatest interest is the fact that I found, imbedded in a hard, calcareous stratum that borders each side of the great crevice, beneath the loose, black soil of the later burials, nearly vanished traces of ancient burials overlaid with disintegrating oval metates and manos coated with calceine. I found numbers of well



MAP No. 31



worn hammer stones and innumerable flint chips throughout. Scattered about the valley were great numbers of objects said to have been taken from this cemetery, for which, unfortunately, all data have been irretrievably lost.

The artifacts that I secured in over a week of systematic trenching, were too few and disconnected in their occurrence, and the skeletal material too fragmentary, to make a positive classification of the period of culture of the people or peoples who once lived here. I believe, however, that in all probability near the close of their occupancy of this region, the Oak Grove People established a camp at this, for them, unusual location; the coastal location was in this case incidental to the more important features of altitude, sweeping view and nearness to oak forests and mountain fastnesses. During or subsequent to the occupancy of this site by the Oak Grove People, the tremendous convulsion occurred that tore the suspended section from the face of the cliff, dividing the cemetery that at that time existed.

After due lapse of time came the horde of the Hunting People, and again the wonderful lookout station was occupied. This people ran their course and were supplanted by the Canaliño, not, apparently, in large numbers, nor living the typical seafaring life that we have learned to associate with them. They occupied the site, to some extent, for a great many years, although, judging from the total absence of objects of white origin, it had apparently been abandoned previous to the eighteenth century. Even here there is a chance for error, as the isolation that had marked the location from time immemorial may well have prevented early contact with the whites.

Taken as a whole, the record of events at this site is much more obscure and unsatisfactory than at many of the other villages.

(94) (95) *ALCATRAZ*

Two canyons enter the sea thirty miles west of Santa Barbara. About the combined mouth of these, cluster a series of oil tanks. Various activities associated with the reduction and distribution of oil and its products also center here. As may be easily guessed, this concentration of industry in nowise tends to further the study of the archæology of the vicinity. I nevertheless made an attempt to decipher the fragmentary records that are still traceable.

Upon the point of land that has been formed where the two canyons meet, was located for a long time a settlement of the Canaliño. Across the canyon to the southwest, the crest of the western promontory also displays traces of camp refuse. This has been cut into by the railroad grade, and a large part of the remainder is covered by a grove of eucalyptus. The reading here is not so conclusive as in the case across the canyon, but I believe it, too, is of Canaliño origin.

Along the crest of the promontory to the south, the sides of the railroad-cut display vast accumulations of flint chips. Following this clew, I found that at beach level are great numbers of flint nodules of many sizes. It appears certain that this was one of the principal sources of supply for the flint industry. It appears equally plain that the nodules were carried to the top of the adjacent bluff, and a process of spalling conducted there, the rough blanks later being taken to the home village of the artisan for completion. The shapeless and otherwise valueless fragments were left to cumber the soil where we now find them.

(96) GAVIOTA No. 2

The site termed Gaviota No. 2 is about a quarter of a mile to the northeast of Gaviota No. 1 and across the canyon from it. It is about one-fourth of a mile from the sea, beside the Coast Highway, at the place where the latter bends to the north to enter the pass. No excavating was done here, but a wealth of material upon the surface speaks plainly of the presence here, for a long period, of the Oak Grove People. There are no oaks now to be found anywhere in the vicinity, but it is conceivable that a forest once occupied this bench land even within historic times. I found no evidence of other people having occupied this site.

(97) GAVIOTA No. 1

At the mouth of Gaviota Creek, upon the rather high western promontory, which forms the western bridgehead of the long trestle here, may be traced the much depleted remains of a former village. Judging from the texture of the refuse, its contents and the few fragmentary artifacts seen, I should place this among the Canaliño settlements.

STRIKING EVIDENCE OF THE GREAT ANTIQUITY OF THE  
OAK GROVE CULTURE

This section does not deal with the site of a village that has been explored or one that has been definitely located. Nevertheless, to the writer the subject of which it treats has been one of tremendous interest, offering as it does the possibility of new light on the problem of man's antiquity in America.

The discovery was not the result of a prearranged plan. February 12, 1924, had been largely devoted to tramping over and mapping almost forgotten rancheria sites to the west of Santa Barbara. On the return trip, upon arriving at the cut near Tecolote Canyon, eleven miles west of the city, I found the highway obstructed by a landslide. A road crew was at work removing the debris, and as there was no way by which I could proceed, I engaged in conversation with the foreman.

When I mentioned, incidentally, the nature of the work in which I was engaged, the foreman at once advised me to remain, as they sometimes found Indian relics at this place.

Almost immediately after our conversation a portion of a stone vessel came to light, about one quarter of a heavy, shapeless, flat boulder, in one surface of which had been worked a fairly deep, oval cavity. The position of the artifact, at the time of its finding by the shovel gang, threw little light on its original position, for it lay in the midst of a mass of mixed debris that had been derived from various levels of the face of the cut.

I now devoted the most painstaking care to a detailed study of the northern face of the cut. At the base and rising about ten feet above the level of the road-bed is a ledge of cream-colored shale, the stratification of which stands at a very steep angle. The upper surface of this stratum appears to have been subjected to great and long-continued erosion, as though it had at some period lain close to sea level and been obliged to withstand the lash of the surf, or else had lain in the bed of a torrent. Lying unconformably upon this eroded surface, the next stratum above it consists of a twelve inch layer of loose, white sand, closely approaching beach sand in appearance.

Above the sand is a tremendous jumble of gravel, clay and boulders, both large and small, typical detritus that has been torn from the nearby mountains in a time of terrific rain and

flood. This structure is fairly constant in material, from the sand stratum to the top of the cut, some fifty feet above the road-bed, although at no level are the evidences of violence so noticeable as in the stratum that joins the sand."

After long search, I found *in situ*, at the junction of the detritus and the sand, a typical well worn mano. There could be no mistake. It was, beyond any question, a result of human activities, but the location in which it was found imbedded was, in my experience, unprecedented. It was between fifty and sixty feet back from the present walls of the canyon, and could not have been by any chance left in its present position by a recent landslide. The stratification alone is enough to prove that this artifact had lain undisturbed where I found it, since the first onrush of the flood of boulders. How I regretted that I had not also seen, in its original setting, the fragment of metate which the crew had already found. To add to my perplexity the road crew insisted that several other artifacts had been found there. I failed to locate any of these. Neither the mano nor the metate, both of which I secured, showed any evidence of "water rolling," although they were very old and frail in texture.

I puzzled for days over this problem, without arriving at any solution. About three weeks after my first visit, after a heavy rain the night before, I again visited the cut. Again I found the roadway blocked with a landslide from the northern face. Again I carefully combed the exposure thus freshly laid bare, and found another ancient mano, imbedded in the boulder debris immediately above the white sand, not more than ten feet from where I discovered the first one. A week later I found a fragment of a metate not more than two feet from where the last mano was imbedded. This fragment, as I remember it, was rather more than one-quarter of an entire piece. It lay directly upon the upper surface of the sand stratum, beneath a mass of boulders. These two objects, like the two previously taken, showed no trace of "water rolling."

I haunted this place for weeks in the hope of obtaining additional light upon the problem. In fact, I have never passed through this cut, in the years that have intervened since my first find there, without examining that mysterious embankment for further evidence of man's former presence at these lower levels, but I have found nothing more. The walls of the cut have now

been worked back many feet from their former location, where the strange finds were made. They still exhibit practically the same structure, but have, apparently, been cut past the cache of artifacts.

Only one explanation of the occurrence seems possible to me, namely, that at a period so distant that it staggers us, a primitive people were located somewhere in the vicinity of the present cut. A flood of extraordinary intensity overwhelmed them and buried their utensils upon the beach, or river bed, which is now marked by the stratum of white sand.

The artifacts which I found were probably not in the exact location in which they were caught by the torrent, but I believe that they were not moved very far, or they would have been more widely separated and would have shown marks of abrasion from having been much tumbled about.

## CHAPTER VI

### EXPLORATION OF THE CHANNEL ISLANDS

AT the close of the exploration of the mainland along the Santa Barbara Channel, an alluring field beckoned from the islands to the south. A group of public-spirited citizens offered to meet the expenses of a limited exploration of the two larger islands, Santa Cruz and Santa Rosa, in the hope that the results attained would throw light on the relations of the island culture to that of the mainland.

It was known from the early chronicles and from traditions of later origin that people kindred to those upon the mainland had once inhabited these islands. Cabrillo's first glimpse of the islands on Sunday, October 15, 1542, gave him no inkling of the intra-insular channels that separate the three larger islands from each other. He says:

“ . . . passing along the shore of a large island which must be fifteen leagues long. They [the mainland Indians] said it was very densely populated.”

Later Cabrillo's chronicler has this to say:

“The Indians of the islands are very poor. They are fishermen and eat nothing but fish. They sleep on the ground. Their sole business and employment is fishing. They say that in each house are fifty persons. They live very swinishly, and go about naked.”

Cabrillo attempted, in the case of the islands, to preserve the local Indian names. He records that San Miguel was called “Ciquimymu,” Santa Rosa was “Nicalqe,” and Santa Cruz, “Limu.” He also gives the names of two villages on San Miguel, three on Santa Rosa, and eight on Santa Cruz. The nomenclature would be of immense interest, could these names be authenticated, or even approximately associated with any existing ruined sites. These names appear to have forever dropped from usage. No other historian of early days appears to have had knowledge of them.

The friar, Juan de Torquemada, writes of the Channel Islands on December 2, 1602:

“Some are large, others are small, and all are filled with gentiles, and all these islands traffic with one another.”

After these comments by the early explorers very little mention was made of the islands and their population. There are occasional references in the Mission records that tend to confirm the tradition that the few remaining Indians were removed from the islands to the proximity of the Missions some time in the nineteenth century.

A few of the older residents of the community recall that, during the seventies and eighties of the last century, several expeditions, headed variously by Cessac, Stephen Bowers and Paul Schumacher, had conducted extensive excavations on the islands, especially upon Santa Cruz. Early in the present century, an expedition, sponsored by the University of California, explored the village sites located upon the eastern end of Santa Rosa Island. Still later, about 1915, a Mr. Hebblewaite and his wife, of Philadelphia, are said to have carried on extensive excavations at Prisoners Harbor, on Santa Cruz Island. During and since these scientific and pseudo-scientific ventures, there have been random but devastating excavations carried on intermittently by parties of excursionists.

The Museum's actual field work naturally fell under two heads, a preliminary survey of the entire field and an intensive investigation of specially selected sites. We had first to obtain information bearing upon the physical characteristics of the islands, including accessibility, possibilities of maintenance, shelter, anchorage for our supply boat, and the possibility of landing stores and taking off material. Above all, it was necessary to decide on the number and probable extent of the prehistoric settlements to be explored.

The preliminary investigation was accomplished during four voyages, each occupying from two to five days. During this survey, the entire coast line of the four islands, Anacapa, Santa Cruz, Santa Rosa and San Miguel, was explored, landings being made wherever it was humanly possible; the total number of landings was over fifty. Where landings were impossible, even at great hazard, the inhospitable shore lines were covered on

foot from some distant landing place. Several excursions were also made to the interiors of the larger islands. San Miguel having but one available harbor, I made a complete circuit of the shore line on foot, covering over fifteen miles. Of the impressions received in the preliminary explorations, two stand out preeminently, first, the indescribable beauty of the islands themselves, second, the evidence of the presence here in former times of a dense population.

The easternmost of the four islands, Anacapa, is small and unimportant, when compared with the other members of the chain. Its nearest shore is about thirty-five miles from the wharf of Santa Barbara. Its longest extent is about five miles, nearly east and west. This length is not, however, a continuous mass, for it is broken into three major sections, the westernmost being the longest, and the easternmost the shortest. These three sections are separated by narrow channels through which at high tide rush impassable torrents. The two eastern sections are low lying and inconspicuous, and are very much at the mercy of the elements. The westernmost section, which bears much more of interest for the naturalist than the other two, rises steeply to a height of nearly one thousand feet. All the sections are composed almost exclusively of igneous rock, and are devoid of forest growth. During the winter and early spring, a sparse growth of lesser plant life clothes a portion of the more elevated western section. On this is the only fresh water that I located, a spring that issues from the floor of a rock shelter. This spring is submerged at high tide. I found no evidence of either indigenous or introduced land mammals on the island, but it is an ideal rendezvous for sea birds and seals. I found no evidence that Anacapa had ever been used as a place of continuous abode by the Canaliño. Several places were found where temporary camps had been established, but in no case did the refuse tell of more than an occasional feast by fishing parties.

The westernmost of the group of Channel Islands is San Miguel, with an area of about five times that of Anacapa. It is approximately fifty miles from Santa Barbara. The major portion of the island averages only from one to two hundred feet above sea level. Near the central portion rise rounded domes of much greater altitude, the two greatest reaching heights of about eight hundred and fifty feet. The greatest extent of



MAP No. 32



San Miguel Island is eight miles, almost due east and west. Its width near the center is about four and one-half miles, although, for the greater part, the width does not exceed two miles.

The formation is largely sedimentary in nature, although there are igneous intrusions at infrequent intervals. The most notable of these is Princess Island, a few hundred yards off the northeastern shore of the main island. This abrupt-sided rock, approximately three hundred and fifty feet in height, is a mass of upthrust igneous matter.

Indenting the northeastern shore is Cuyler Harbor, a landlocked bay about one mile in width and in length, which appears on the chart, an ideal refuge for small boats. In reality, it suffers from a peculiarly rough and treacherous swell, due to the conflicting currents that sweep in through the eastern and northern entrances, which are separated by Princess Island.

Aside from Cuyler Harbor, there exists but one other protected anchorage, a bight on the northwest coast, known as Otter Harbor, suitable only for small boats. In weather that will permit open-sea anchorage, landings from a small boat may be made at several points on the coast, especially on the eastern end.

There are indications that, within historic times, a considerable forest growth was present on San Miguel Island. There are those still living who remember the lush vegetation that once covered the surface. This pasturage induced certain individuals to introduce large flocks of sheep. For a time, all went well, but seasons of drought reduced the growth to such an extent that the sheep were forced first to strip the trees and shrubs of their lower branches and then of the bark. In a last struggle to maintain life, the poor beasts even pawed into the earth and consumed the roots. As a result, no trace of tree or shrub is now to be found upon the entire island; vegetation of any kind is sparse and restricted to certain areas. The winds sweep unhindered across the naked mesa, undercutting the unprotected soil, and sweeping the lighter materials in dust clouds out to sea. The heavier sand particles are carried along the surface, in a blast that flays the face and hands of the pedestrian who braves these wastes. Under the lee cliffs of the island, one may, at any dry period of the year, find torrents of sand pouring

into the sea. There can be but one end to this ceaseless erosion. In the course of time, San Miguel will cease to appear on our maps as an island, and will be charted as "dangerous shoals."

Another item that adds to the dreariness of this waste, is the scarcity of water. One fairly good spring and a few trickles of fresh water, are the only sources of supply.

I have been at some pains to outline the physical features of this island both in their present and past phases, in order to show that the aborigines had an environment widely different from that which we find today. To the rocks about the coast still cling the countless shellfish that were an important constituent of their food supply. Schools of fish still frequent the adjacent waters, and a huge herd of seal still make this their rookery, as they doubtless have done for thousands of years, but the island itself has been so denuded within historic times that it is doubtful if it could now give shelter to a tithe of the people who once found refuge here.

I had no opportunity to conduct any excavations on this island, so that my conclusions as to its archæology are based exclusively upon the results of superficial investigations conducted during a part of two preliminary explorations. The southern shore of the island had, broadly speaking, been unpopular with the Indians as a residential site. Several locations were found where shallow deposits of refuse pointed towards temporary camping places, and at a few points, near the center of the south shore, these deposits reached a depth that would indicate a continuous residence there at some period. The eastern shore, the borders of Cuyler Harbor, and the entire northern shore, including the western extremity of the island, were evidently for a long period the seats of a very dense population. The recent tremendous erosion has taken heavy toll from these ancient village sites, and it is only by the most careful study that conclusions can be drawn from the ruin that prevails.

My investigations led me to this conclusion. If all the territory which bears such unmistakable evidence of having been intensively occupied for a long period, was occupied at the same time, we have here the remains of the most extensive unbroken Indian settlement, of which we have knowledge, on the American continent north of the Mexican boundary. Throughout the en-

ture length of over eight miles, the northern border of the island exhibits only three narrow breaks in the dense beds of debris. There appears to be, at present, no mode of determining positively whether the various divisions of this extensive area were occupied contemporaneously or whether they represent the results of a shifting of settlement centers. I am inclined to adopt the former theory. The greatest congestion of population appears to have been at the two extreme ends of the island, over the crest of the low headland at Point Bennet on the west and to the northwest from Cardwell Point on the east. There was also a very dense population along the canyon that enters Simonton Cove, about midway of the northern shore. This latter settlement extended inland, along the sides of the gorge, for a distance of two miles.

I have emphasized the fact that there has been almost unbelievable havoc wrought in the remains of this settlement through the agencies of erosion. There are, however, a few places where small sections of the camp debris are still practically in place. From these we may obtain data as to stratification, contents and depth. The depth, in places, was as much as fourteen feet, although six feet would, I believe, be a fair average. From the stratification, we learn that there was little or no change in habits from first to last. We also learn that the chief constituent of the islanders' food was shellfish, and, in particular, the abalone (*Haliotis*), the shells of this species being present, literally, in tons. The bones of fish and seal were also very noticeable, and throughout all of the undisturbed material was a quantity of ash and soot.

In places, the relentless erosion has attacked burial plots, removing all of the finer material and leaving the skeletons to fall apart and roll about over the surface. One of these bone-strewn plots is about midway between the ranch house and the shore directly east of it. Another is several hundred yards east of the last described. A third rests on the top of the cliff that borders Cuyler Harbor on the west. A fourth cemetery is exposed in the gorge that enters Simonton Cove, about three-fourths of a mile from the sea. A fifth burial plot is about one-fourth of a mile farther inland than the last described. Two other cemeteries, about one-fourth of a mile apart, border the shores of Otter Harbor.

The heavier artifacts from the graves, owing to their weight, remain in position for a time. They finally become undermined and roll to a lower level. Articles of this class have their entire surface more or less honeycombed, as a result of the sand blast to which they have been subjected. The different degrees of the roughening that are found in a series of these objects may be ascribed directly to the various lengths of time that they have been exposed to the air. The first point of interest in the artifacts found upon the surface is their close resemblance to those found upon the mainland. The next is the presence of large numbers of mortars and pestles, though there are now no acorns to grind in them.

The mortars are deep and round; the pestles are short but well formed. The presence of the spindle-shaped charm-stone shows a kinship of religious beliefs between this people and those of the mainland. A grooved "bola" shows that the island Indians made some use of this object. Many bone implements were in evidence. Among them were several stout, sharpened bars of whalebone which I believe were used in detaching abalones from the rocks. The majority of blades and arrowheads were made from a calcitic, milky-white stone instead of from flint. I failed to find the origin of this material, but the presence of numerous chips of it in the debris, leads me to think that it was easily available. Two knives of this material, found by Mr. Hurlbut, are splendid examples of the weapon-maker's art.

Due to the enormous erosion that has taken place here, I believe that it is now too late to work out a consecutive story of the sequence of events that have taken place on this island. Many priceless objects could, however, still be salvaged by a systematic search in the residue which is heaped in masses in the more sheltered parts.

The two larger islands in the channel group offer an almost limitless field to the archaeologist. Their wide extent, broken contour, and lack of roads, or even of good trails, make exploration anything but easy. This condition has been a blessing in disguise to the cause of archaeology, for the week-end excursionists find it impracticable to penetrate to the more remote fast-

nesses and these have been spared the desecration that is everywhere in evidence about the easily approached points.

The second island from the west, Santa Rosa, is only slightly less in area than Santa Cruz, the largest of the group. It is owned by the Vail-Vickers Cattle Syndicate and is used by them as a cattle range.

The longest extent of Santa Rosa is practically east and west, eighteen miles separating East Point from Sandy Point, the most westerly extension. From South Point to Carrington Point, which is slightly east of north on the opposite side, is eleven miles. These measurements, however, give a somewhat exaggerated idea of the area of the island, for all of the points are at the extremities of rather attenuated tongues of land. A map of this island suggests a roughly drawn caricature of a sunfish, with the head to the west, ending in Sandy Point. The tail at the east is divided into two flukes, Skunk Point and East Point. The dorsal fin ends in Carrington Point and the ventral fin in South Point.

This island lacks, to a large extent, the ruggedness that is so characteristic of its neighbor, Santa Cruz. The cliffs that form the shoreline are low and throughout most of their length not difficult to climb. Along the eastern side of the island, there are, for considerable stretches, well-defined sandy beaches. A short distance back from the shore, the land rises into a series of rounded hills that occasionally reach to heights of fifteen hundred feet. These hills are, in places, heavily clad with brush. Wide areas are also covered with thickets of cactus.

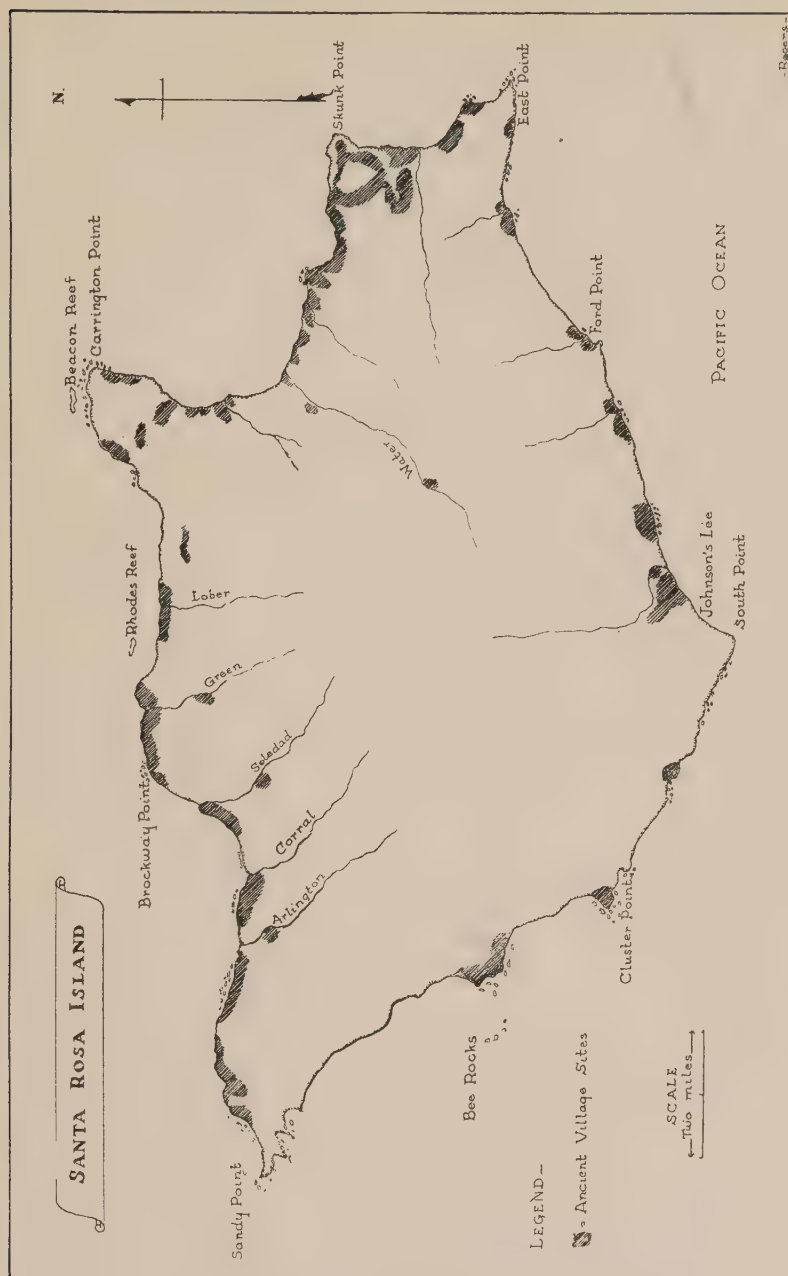
Among the hills of the interior are many picturesque canyons, several of which are well watered. Groves of trees occur, but not of large extent; one of these groves has become noted as one of the two surviving stands of the Torrey Pine. Over the greater portion of the island grows lush grass that furnishes abundant pasturage for several thousand head of cattle and a small band of introduced elk. No sheep are now kept on the island. Wild hogs, descendants of domestic animals that in the course of time have reverted to a primitive type, are abundant, and make themselves obnoxious to the resident cattlemen. The indigenous mammals are abundant but are confined to three species, the Island Fox, the Island Skunk, and a mouse (*Peromyscus* sp.).

On the whole the place is well watered. The larger canyons, that enter the sea upon the north and east, carry running streams of sweet water. Those upon the southern slope, on the contrary, contain so many mineral solutions that they are unfit for human consumption. Only the wild hogs make use of these streams, and as a consequence this is a favorite range for them.

A small portion, only, of this island is wind-swept to a degree that has converted it to desert conditions. The area is confined to a narrow strip along the northern coast and to a few irregular tracts bordering upon Beecher Bay and Skunk Harbor.

Protected anchorage exists at but three places along the coast of Santa Rosa Island. Throughout most of the year, Beecher Bay, which indents the northeastern side, offers abundant shelter for boats of any draught. During the brief period of the "southeasters," this harbor is worse than useless, being lashed into fury by the enormous swells that sweep up the intra-insular channel. Skunk Harbor, near the southeastern extremity of the island, is shallow and only partially landlocked, but furnishes excellent anchorage for small vessels at all times except when the southeasters blow; during those storms no ordinary boat could live in it. Johnson's Lee, to the east of South Point, furnishes good anchorage for small craft throughout most of the year. This convenience is, however, nearly neutralized by the fact that no beach exists along this shore and landing is difficult. This handicap and the nauseating water of the locality make this a very unfrequented region.

The island, almost in its entirety, is built of strata of sedimentary rock. So far as I was able to determine, the bulk of this material is a marine deposit of Miocene age. Characteristic molluscan remains of this period are to be found, even near the crest of the higher hills. Long stretches of raised beach may be found in many places, fully forty feet above the present sea level. These exposures contain many remains of molluscs that are still living on the nearby shore; I believe that the entire island has risen considerably in post-pleistocene time. At frequent intervals, there are small intrusions of igneous matter. One of the most pronounced of these is a prominent dome that rises from the southern shore of Beecher Bay, about one-half mile west of Skunk Point.



MAP No. 33



The deposit that is undoubtedly of greatest interest to geologists and palæontologists is of Pleistocene age and of terrestrial origin. This covers a considerable area in the northwestern part of the island, and is crossed and sculptured by several of the larger canyons of that district. The formation appears to be of considerable thickness and is composed of alternating beds of sand and clay, that rest nonconformably upon the Miocene rocks. It is from this deposit that remains of elephants have recently been taken. This is of more than passing interest, for it definitely places the connection of these islands with the mainland as late as Pleistocene time.

Completely encircling the island are to be found, at not widely separated points, the now long abandoned village sites of the Indians. These are nearly all located on the bench land, at the tops of the low cliffs that overlook the sea, and in most instances near a supply of fresh water. Some of these sites are restricted in area, and others show but a shallow deposit of refuse, but the majority are of great extent and depth.

In the southwestern part, near Skunk Point, the almost continual winds have wrought such havoc that this region has been reduced to the condition that we have described on San Miguel. Farther to the northwest, along the shores of Beecher Bay and also on the cliffs above Johnson's Lee, the village sites have been excavated, chiefly by the University of California in the early part of this century.

Along the crest of the cliffs that mark the northern shore are almost countless sites that were once occupied by Indians. These inhospitable shores are very difficult as landing places, and as a consequence, many of the chief locations show very little evidence of having been disturbed. In a village site existing under these conditions, it is interesting to note the superficial markings, the entire village area frequently appearing as a mesh of interlocking circles. These raised circles of debris had originally surrounded huts. In some instances, the erosion of recent years has cut through some cemetery plots, leaving skeletons exposed on either side of the ditch. Many artifacts are to be seen upon the surface in such locations. The great extent of these former village sites at once arouses interest. There are several of them that extend one-half mile in length, and some are of considerable width.

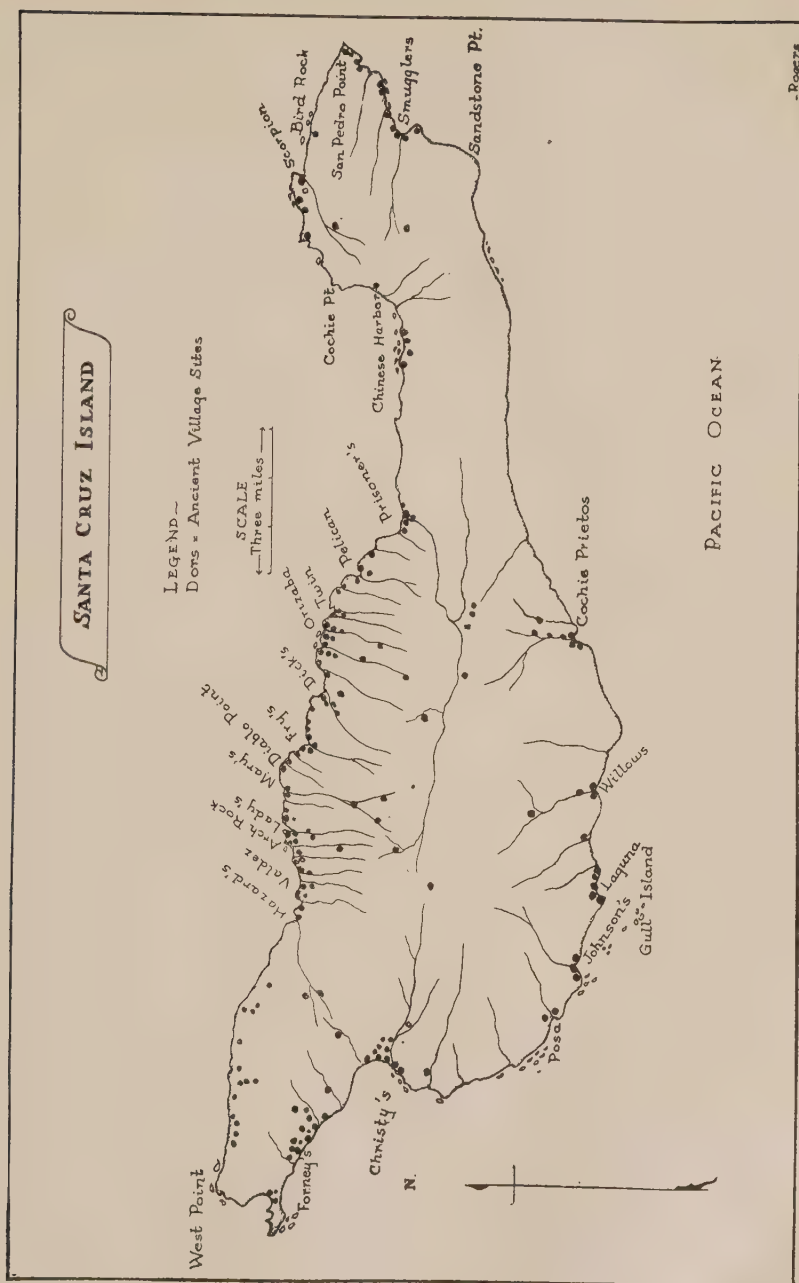
Along the western and southern shores these sites are not of such frequent occurrence, nor are they as large as those found elsewhere on the island, the scarcity of good water probably accounting largely for their restricted area. Excursions over the dim trails to the inner fastnesses of the island showed that not a few important village sites existed there, miles from the sea shore. It is difficult to understand why this class of site was chosen, so far from the chief source of food supply.

The natural difficulties, to be expected in all undeveloped regions, were greatly lessened, on this island, by the friendly assistance given by the owners and resident employees. Especial mention should be made of the aid given by the superintendent, Mr. C. W. Smith.

The most important of the Channel Islands is Santa Cruz. It is the most advantageously situated from the standpoint of the sightseer, being nearly twenty-eight miles directly south from the city of Santa Barbara on the mainland, and even less, in a southwesterly direction, from the city of Ventura. It is the largest of the group, is more lofty and rugged in contour, and has a wide diversity in landing facilities. Above all, there are everywhere evidences of the former existence of a teeming prehistoric race.

The island is about twenty-five miles in length, almost due east and west. Its greatest width, not far from seven miles, is west of the center. This width is maintained approximately, throughout a considerable part of the western half of the island, except for a projection of the northwestern portion where, for a few miles, the width is hardly more than a third as great. East of the center there is a marked narrowing to a width of little more than two miles. This narrow ridge, nearly fifteen hundred feet high in places, extends for nearly five miles to the east, where the shore lines again withdraw. This gives the eastern end a much greater width than two miles. The central part of this enlarged area is marked by a broken range of hills, over fifteen hundred feet in height.

The wide western half of the island is cut into two distinct ranges of hills, that rise almost to the dignity of mountains; the highest peak has an altitude of a little over twenty-four hundred feet. Between the two ridges runs a deep, well-



MAP No. 34



watered central valley, from which fork many deep, tributary canyons. In many instances these are heavily wooded with oak, pine and ironwood.

The slopes which face the sea are cut by numerous, deep gorges with abrupt sides, through which a stream usually trickles. The bottoms and sides of the ravines that empty to the north and south are, as a rule, clothed with trees; those that enter the intra-insular channels to the east and to the west are devoid of trees.

The higher ridges of land are covered in most places by grass, but not as luxuriantly as those of Santa Rosa. This may be partly due to the larger amount of stock that is pastured on Santa Cruz, but I believe that the latter island also lacks somewhat the fertility of Santa Rosa.

The rocky foundation of Santa Cruz is largely of igneous origin, with baffling complexities at almost every step. The island has apparently undergone repeated transformations through the agency of coastal upheavals. A section of the sea-floor of the Miocene age was lifted above the surface, broken and torn, and its crevices filled with igneous intrusions. This new-born land, of whose extent we know nothing, endured for a time and was again swallowed by the sea. This cycle was repeated at least three times, probably many more than that, previous to the advent of the Pleistocene Period. Upon at least four of these occasions, torrents of melted stone were poured forth, each of these outpourings of a different nature from that which preceded or followed it. As a consequence, we find a great variety of igneous material heaped in grotesque formations, from which at irregular intervals protrude fragments of the much broken original sedimentary rocks.

A map of this part of the western coast of the American continent in early Pleistocene time would probably present an entirely different appearance from that with which we are now acquainted. From Point Conception to Cape San Eugenia, on the coast of Lower California, instead of the island-dotted sea that now indents the shore-line, we should see a wide extent of fertile forest land. We know that these dense forests were the haunts of mammals that are now extinct. Among these were herds of elephants, of at least two species, droves of horses, giant ground-sloths, saber-toothed cats and huge wolves. Along

the outer rim of this land bubbled and fumed many small volcanic vents.

At some time preceding the close of the Pleistocene Period, there occurred a tremendous remodelling of the coastal region. Areas, approximating in some places one hundred miles in width, were suddenly swallowed by the sea, and, at the same time, a line of low-lying hills, that had formerly straggled through the interior, were now suddenly raised to a range of low mountains that bordered the new-made coast-line.

At the close of this movement, nothing remained of the former fertile lowlands except a dozen or more islands. These still mark the places where volcanic outbursts had anchored small bits of land during the catastrophe which had engulfed the neighboring land. Of these remnants, the Channel Islands are the most northern representatives. From the period of this major convulsion to the present time, there have apparently been no more eruptions of igneous material along these shores.

In parts of Santa Cruz Island, as on Santa Rosa, we found deep deposits of terrestrial origin of Pleistocene Age. In this formation, near the western extremity of the island, are huge logs of the Douglas Fir, imbedded beneath many feet of sandy clay that antedates the present era. I have found no authentic records of the finding of Pleistocene mammals in this stratum, but have little doubt of their occurrence.

For a long time, the physical conditions in the vicinity of the channel remained fairly stable, though the islands did not possess as great an altitude as they do now. From late Pleistocene to the present time, an arm of the ocean has separated the islands from the mainland, and other channels have divided the islands from one another. At some time during this interim, a minor earth movement raised the islands some forty feet above the positions which they had occupied after the subsidence of the channel. This latter movement was probably accomplished slowly and without violence, for the beach line which had been laid down previous to the beginning of the elevation is now found, without a break, forty feet above the present tide level.

Santa Cruz Island is at present quite heavily stocked. There are probably over one thousand head of cattle, and many thousand sheep. Many of the latter can hardly be called domesti-

cated. Each year, in spite of the strenuous efforts made to capture them, at least half escape being sheared. Hogs, that have reverted to a primitive type, roam freely about in small droves, in the wilder and more broken parts of the island, living largely upon the roots of cactus which occurs, in immense patches, in many parts of the island.

The same indigenous mammals that are found upon Santa Rosa and San Miguel are also present upon Santa Cruz. These are the Island Fox, Island Skunk, one species of mouse (*Peromyscus* sp.), and an unidentified bat.

The facilities for landing on Santa Cruz are much greater than on any of the other islands, no less than twenty points being available for this purpose. These landing places are not at all equally distributed. Beginning at West Point and extending east along the north coast for a distance of six miles, is an unbroken wall of high cliffs that drop sheer into deep water. Beyond this inhospitable stretch are nine miles of coast line, along which no less than eleven canyons break through the sea walls, each offering some facility for a landing. These conveniences end abruptly at Prisoner's Harbor; the succeeding twelve miles of coast, ending at the easternmost cape, San Pedro Point, are without safe landing places, except at two points, Potato and Scorpion Bays.

The northern two-thirds of the eastern end of the island is accessible to small boats at almost any spot, except during the time of the "southeasters," when it is unapproachable. For over ten miles, the eastern end of the south side of the island presents an almost unbroken barrier of cliffs, with only two places where the most hardy fishermen sometimes make landings. The next nine miles of southern coast line offers only six anchorages, but some of these, such as Cochie Prietos and Wilows, are exceptionally good.

The entire western coast line of about ten miles may be said to offer but one good anchorage, namely, Forney's Cove, behind the protecting rocks of Fraser Point, at the extreme western end of the island. There is a so-called harbor at Christies, at the mouth of Cuesta Creek, but this is usually avoided by seamen. The swells which sweep in from the larger channel, concentrate upon this place with double force, and almost insure the swamping of landing boats.

At all advantageous places, throughout the entire length of this much diversified coast line, are found evidences of occupation by early man. There appear to have been two requirements which would insure continuous residence by these early settlers, at any given place—fresh water sufficient for domestic use, and near-by sea-washed rocks to furnish the shell-fish which were their staple food.

Ease of access, comfort, protection from the elements, all of these appear to have been minor considerations and were usually ignored. It is not unusual to find village sites upon this island, located in the most unfavorable positions, judged from a Caucasian standpoint, while closely adjacent an ideal spot may remain unoccupied.

Roughly speaking, wherever there occur mollusk-bearing rocks with fresh water near-by, ancient village sites almost elbow one another, but there are many sites where one or the other of these requisites appears to be lacking. Especially in the interior of the island, there are locations, the attractions of which are hard to understand.

The condition in which we find these former settlement sites varies greatly. In some places that were exposed to the elements to more than the usual degree, there has been great erosion, and, in some instances, almost total destruction.

In a few sites, we note the devastation wrought by former earth movements, during which villages have been torn apart and sections of others hurled into the sea. From still others, mountain freshets have exacted a toll, although this form of ruin is of far less frequent occurrence than on the mainland.

Besides the havoc that had been wrought by the forces of nature, there has been active excavation for the last half century. Several organized expeditions, directed by recognized scientific institutions, have done excellent work in preserving the records left at certain prominent sites, but by far the greatest amount of excavation has been carried on by mere relic hunters. Fortunately, the difficulties to be overcome in reaching many of the most interesting sites have, so far, preserved them from attack.

Of the more than one hundred sites which I investigated upon Santa Cruz, I should say that fifteen had been the subjects for detailed, scientific study. Thirty had been wantonly

ravaged. Twenty have been practically eliminated by the elements and earth movements, and the remaining thirty-five, or more, are untouched. Among the latter, there are probably fifteen that would prove immensely rich in valuable material.

Our exploration of this island was made easier by the friendly interest and hearty co-operation shown by Mr. Fred Caire and by other members of the Caire family.

## CHAPTER VII

### VILLAGE SITES, SANTA CRUZ ISLAND

IN discussing the separate village sites of the two larger islands of the channel group, I am handicapped by the small amount of time that I was able to devote to most of them. Probably more than half were surveyed superficially, in the course of extended walks that involved the scaling of precipitous cliffs and the skirting of impassable chasms. It was not uncommon to find two ancient camp sites occupying the opposing rims of an impassable gorge, separated by no more than a short bow shot; yet the visit from one to another involved an arduous climb of several miles around the head of the ravine. Other camp sites were found beneath jutting rock shelters, high on the sides of obscure, wooded canyons. To explore still others it was necessary to scale a steep, brushy mountain ridge, to a height of nearly eighteen hundred feet, and to drop from there abruptly into some deep tributary of the interior valley where, beside a spring, a well developed settlement site was found. In the limited time at my disposal, exhaustive investigation of any particular site, except at a very few places, was impossible. There is also a strong possibility that there are several sites that I failed to find.

From West Point east to Hazard's landing, a distance of approximately six miles, close to the northern shore of the island, but, in most instances, a short distance back from the brink of the high sea cliffs, is a series of fifteen kitchen middens, distributed at fairly regular intervals. These are, in no instance, of any considerable size, nor do they seem to be of any great depth; yet their presence here, at all, and the quantity of debris that they contain, are remarkable.

So far as I was able to determine, only one place exists within miles where fresh water may be obtained. This, in itself, would appear to be a tremendous handicap, but, when we examine the line of cliffs that separated the villagers from the tide-washed rocks that supplied them with food, our wonder



Mouth of Gorge Which Enters Valdez Bay, Santa Cruz Island.  
The mouth of the "Cueva" is seen at the right.  
Our camp near the left



Looking Outward from the Landing Place within the "Cueva  
Valdez," Santa Cruz Island. Across the bay are seen three  
of the terraces formerly occupied by Indian villages

PLATE 32



The Middle Terrace Above Valdez, Santa Cruz Island, Where Our  
Greatest Finds Were Made



Small Steatite Bowls, Santa Cruz Island

grows. These cliffs are from two to three hundred feet in height, and present an almost unbroken perpendicular front. In only a very few places could even a skilled mountain climber make his way to the top, yet the presence of great quantities of shell fish debris indicates that this climb was made frequently, under a great burden of mollusks, and sometimes fish, for remains of these too were found.

Slightly above high tide, in one place near the foot of the great cliff, and hidden from the sight of seafarers by a projecting rocky spur, is a small cave, with a floor space of perhaps four hundred square feet. The floor is covered with a quantity of food refuse, beneath a deep layer of detritus from the ceiling. In a narrow corridor at the rear of this chamber is a pool of cool, sweet water. This is the one place in all this part of the island where I could find drinking water. This cave and pool are at the foot of one of the few places where the cliff might be scaled by a skilled mountaineer. The residents of the fifteen villages that once capped these forbidding cliffs must have paid an enormous price, in physical effort and personal risk, for the barest essentials of life.

About one mile east of the easternmost of the above described chain of settlements, the first of a series of deep gorges enters the sea, creating a landing place known as Hazard's. A spring-fed stream that enters here and the presence of a sheltering forest, seem to make this an ideal location for a settlement, but the aborigines apparently thought differently, for we find the first evidence of their former presence here high above the floor of the canyon, on the bare wind-swept crest of the cliffs. Each bite of food, or drink of water, or stick of fuel, used in these exposed settlements, involved the expenditure of tremendous effort in scaling the precipitous cliff.

A mile above the mouth of the gorge, where the canyon forks for the second time, there is a narrow deposit of kitchen debris, which follows the floor of the ravine for nearly a quarter of a mile. This location is beside a running stream of sweet water, and the depth of the camp debris indicates that it was long utilized as a village site.

High on the northern side of the western fork is a very large rock shelter, which shows every indication of having been occupied, for a long period, in times past. It is now used as a

shelter by the half-wild island sheep, so that the exact condition of the prehistoric floor deposit is at present problematical. Heaped in front of this shelter and extending down the slope to the very floor of the canyon, is a great accumulation of camp site refuse, in which ashes and burned materials predominate.

A little over a mile to the east of Hazard's is Valdez, or the "Cueva" (cave), probably the most popular modern landing-place on the islands. Two rock walled gorges enter a small bight at this place. They are separated by a high rocky point, access from one to the other being through a cave, near the extremity of this point. The easternmost of these canyons is devoid of trees or water. The westernmost gorge is wooded, and through it runs a stream of excellent water, which forms a waterfall a little back from the beach. This gorge is approached, from the sea, by means of a cave, with an inner passage that leads to the floor of the canyon.

In the immediate vicinity of the aforementioned waterfall and slightly above the bed of the watercourse, is a small but well defined Indian camp site. As a location, this appears to fill all of the requirements that the most fastidious modern white man would demand for a residential site. The rather restricted area has been greatly disturbed by picnickers. Our investigation, in this ruin, disclosed one undisturbed skeleton resting face down, in the flexed posture. There had probably been, at one time, a small cemetery on the upper, or western, side of this site.

Other settlement sites in the vicinity fairly jostled each other for space. A small and unimportant one occupied the apex of the lofty ridge that separates the twin gorges. Forty rods to the west of the entrance cave and only a few yards above the surf line, is a quite extensive ancient village site that has been much disturbed by relic hunters. It is approximately five hundred feet in length, east and west, by one hundred feet in breadth. I believe that valuable data might still be secured from the undisturbed vestiges that remain here.

High on the crest of the bluffs that overlook Valdez from the west is an area, of considerable extent and depth, which shows great accumulations of food refuse. This location is about six hundred feet above sea level and would have served ad-

mirably as a look-out station, but, from any other point of view, its selection as a residential plot appears strange.

Across the cove, to the east of the last described site, appears a ridge of land that drops towards the sea by a series of terraces. This ridge forms the eastern side of the eastern canyon that debouches here. There are five distinct steps to this terraced point; each in its time has held a populous settlement, the story presented by each terrace differing somewhat from that of the others.

Upon the highest terrace, or rather the crest of the ridge, at about the four hundred foot level, is a rather restricted circular area, upon which camp refuse to a depth of two feet still remains; these remains probably offer little clew to the original depth of the deposit, for passing herds and the winds have greatly reduced its bulk. A quantity of the customary food refuse, together with flint chips and cores, shows that the normal village life was carried on here, although the location is characteristic of the typical "look-out stations." Near the center of this site is a series of flat stone slabs, which had been exposed by erosion, previous to our arrival. These were investigated and a small cemetery was located. We found the skeleton of a man lying flexed, back up, with the head to the west, and the face turned toward the south-southwest. No artifacts accompanied this burial, nor were any evidences of artifacts, aside from the flint chippings, found anywhere in this site.

Towards the sea, the ridge drops sharply to the second terrace, some eighty or one hundred feet lower. This, too, at one time bore a dense population, but, at some time in the distant past, a severe earth movement almost completely destroyed it. Yawning fissures of considerable depth criss-cross the former site in every direction, giving a miniature "bad-land" effect. Upon the crest of several of the monument-like fragments that still remain upright, one may see the stratified debris of the former village. At one place, these towers display, near their summits, protruding human bones; these probably indicate the location of the former cemetery.

From this ruined section, the spur of land drops to another bench, or the middle terrace. This, at the time of our investigation, offered by far the best opportunities for study of any of the benches. It is about two hundred feet above sea level,

and is fairly level over a considerable area. Its superficial aspects indicate that it is composed almost exclusively of sea-shells, both entire and fragmentary. A great crater, near the center, speaks of the former presence of excavators, but a dense growth of cactus over large sections of the terrace encouraged us in the belief that the entire site had not been rifled. The clearing of this bench-land of the encumbering cactus was arduous and painful in the extreme, but later developments proved that it was well worth the pains that it cost.

Our series of trenches laid bare a considerable portion of the story of this particular part of the village. This part of the hillside had been originally much lower than that upon which had stood the settlement destroyed by the earthquake. Between the two had been an almost perpendicular drop of twelve or fourteen feet in height. I could not determine positively whether or not this lower bench was occupied previous to the convulsion and had shared the same fate, but it is certain that a group of natives subsequently established themselves at the foot of the low cliff, above which the ruins of the former village lay, and resided there continuously to the close of prehistoric time.

An almost unbelievable amount of debris had accumulated about this new settlement and had overflowed from the sides to the lower reaches. The flat top of the terrace retained a considerable portion, however, and its surface rose gradually until, at last, it reached the top of the low cliff at the back. Over a large part of the area this debris, consisting largely of sea shells and ashes, measured twelve feet in depth, even after a century of continuous erosion.

Our excavations did not uncover any of the more important civic features; these may have been destroyed by the many parties who have dug into this great heap. Sections of the face of the buried cliff were laid bare, disclosing marks of the long-maintained fires that had once burned at its base. Several scorings are traceable upon the exposed face of the cliff, but bear little evidence of ever having had any meaning.

Throughout a great portion of the refuse heap, probably the most remarkable item noted was the almost total absence of artifacts, both entire and fragmentary. There was also a great dearth of evidences of manufacturing industries. Only

a very few flint chips and no cores were found, and nothing that would lead one to think that bead making had ever been carried on here.

Fishing paraphernalia and fish refuse were of rare occurrence, but fragments of whale and seal were not uncommon. Upon the eastern slope of this terrace, the side opposite the cove, and three feet below the surface, there were found fragments of planking that had once been part of a boat. These still retained the perforations near the edge, by means of which the different pieces were lashed together, and also traces of the asphaltum that had been used in calking the seams.

The cemetery that had served the earliest settlers here, was probably restricted in area, and the great efforts that our crew expended, in trenching through the twelve-foot thickness of the debris heap, failed to disclose its whereabouts. We did, however, find that the upper stratum of the entire northwestern angle of this bench—the portion that overlooked the entrance to the cove—had been used as a cemetery, during the later years of the settlement's existence.

Over the entire plot, which was circular in outline and measured about thirty feet in diameter, grew a dense thicket of cactus that reached a height of seven feet, whereas the cactus upon the remainder of the terrace hardly exceeded four feet in height. When this growth was removed, the upper soil proved to be very similar to that of the remainder of the terrace, almost pure shell and ashes. This stratum is probably due to the action of the wind and rain during the last century, which had brought down and deposited the debris from the higher parts of the shoulder.

Beneath this deposit, we came at once to a rich, black, mellow loam, which we had long since learned to recognize as cemetery soil. At an average depth of eighteen inches below the surface, lay an almost continuous pavement of flat stones, boulders, and broken stone vessels. Among these were a few perfect artifacts, a small "stone doughnut," a symmetrical tapered pestle and an elongate vessel of steatite.

From the interstices of this pavement, at irregular intervals, could be seen protruding human bones. Below this rocky platform, and between it and the four-foot level, were found many skeletons. These were of individuals that ranged, in age, from

one to one hundred years, and were of both sexes, there apparently having been no attempt at a segregation of groups. Each body had been laid away in the embryonic posture, that is, with arms and legs folded tightly against the chest, but this was the only point in which these burials resembled each other. The heads pointed towards every point of the compass. The skeletons lay with breast down, upon the right side or upon the left side. In fact, there appeared to be an endless diversity employed in laying these bodies away.

To make this more clear I will give the details of the conditions that surrounded a few of the skeletons, taken from a page of field notes bearing upon this site.

Skeleton No. 1. That of an aged male, in good state of preservation. Found at the thirty-six-inch level. The head pointed towards the northwest, the entrance of the harbor; the face was turned to the right, toward the northeast. No artifacts were in accompaniment. Beneath the breast was a small abalone shell filled with red paint.

Skeleton No. 2. That of a child about three years. Found at the twenty-inch level. Head pointed towards the southwest, and lying upon the right side. Clustered about the neck and breast of this skeleton were almost countless decorations consisting of many beads of various types and materials, the most numerous being beautifully fashioned, small, keg-shaped sections of bone. Many others were of staurotide, but of such crude and uncouth workmanship as to excite our wonder. Do they represent the handiwork of a child, of a blind person, or are these objects the product of one devoid of artistic sense? A few beautiful shell spangles, and several delicate bone pendants were also found.

Skeleton No. 3. That of a middle-aged female, found at the twenty-four-inch level, head pointed to the south and resting on the right side. An abundance of ornaments were present at the breast, including several massive beads of staurotide, nearly all of them unsymmetrical, although a few were beautiful in contour. Large bone beads and those of shell were also present. The presence of large wampum, imbedded in curved sheets of asphaltum, leads to the belief that a few at least of the staurotide ornaments were originally inlaid. Besides the personal ornaments, this grave also contained a small staurotide "doughnut," a small sandstone "doughnut," and two

beautiful, small tapered pestles. In the near vicinity of this grave were large slabs of whale bone, and two thin-walled, broken stone bowls.

Skeleton No. 4. That of an infant, the head and part of the torso lying in an elongate, canoe-shaped vessel, the limbs being outside the rim. This skeleton lay upon the left side with head pointed toward the north. In this grave were several personal ornaments, a bodkin-shaped steatite object and a crushed steatite cup. There were also a slender bone hairpin and several abalone receptacles near the head. One of these was stained with red paint.

Skeleton No. 5. That of an adolescent, at the thirty-six-inch level. Lying upon the right side with head towards the west. Over the head of the skeleton was turned a peculiar, inlaid, scoop-shaped utensil of steatite, probably a fragment of a miniature canoe. Many personal ornaments of various types were also present.

Skeleton No. 6. That of an aged individual, probably female. The skeleton lay face down, with head pointed toward the south, at the twenty-inch level. No artifacts accompanied it.

Skeleton No. 7. Lay at the thirty-two-inch level, and was that of a child of about five years of age. This lay upon the right side, with the head toward the west. It was accompanied by a large lump of red paint, a stone "doughnut," and three spangles cut from abalone shell.

Skeleton No. 8. Was that of a middle-aged woman. The skeleton lay face down, with head pointing to the south-west. The hips were, in this instance, at a considerably lower level than the head, being one of the few cases that give some basis for the popular fable of "seated" skeletons. The accompaniments in this grave were a dozen elliptical ornaments, cut from Giant Limpet shells, and found at the back of the skull, where from the symmetrical positions they occupied, we were positive, they had once formed part of a woven design of the back hair. About the neck was a small string of wampum.

Skeleton No. 9. Lay at the twenty-four-inch level, and proved to be that of a very aged woman whose shrunken jaws had long been devoid of teeth, except for one protruding fang of great length. This skeleton lay upon the right side, with head pointing towards the southwest. A very few shell spangles accompanied it.

Skeleton No. 10. That of a massively-built male of above the medium stature. This lay at the thirty-inch level, *upon the back*, one of the very few examples found in this position, the head pointing toward the west. There were no accompaniments.

These few examples will serve to illustrate the diversity of details that are present in any of these cemeteries. At the same time, it will be noted that there is always present some characteristic that gives them an unmistakable local individuality.

In few instances did the graves of this cemetery reach to any considerable depth. Beneath them was invariably found from four to six feet of undisturbed, stratified camp debris, with well defined fire-pits present. There can be but one conclusion from this condition. The burial plot that we are describing belongs to the later period of this settlement, and had been established upon the debris which had been accumulating for centuries. The cemetery that had previously served the village doubtless still lies hidden deep beneath the many feet of refuse that cumber the terrace.

It is interesting to note that not one object of white manufacture was found at this site. It probably ceased to exist previous to, or at the time of the first advent of the Europeans.

From the last described location, the land drops very abruptly towards the sea. About fifty feet down, the slope flattens out into another terrace that lacks little of the importance that we have ascribed to the middle terrace. It, too, had in the center an extensive crater, proof of the activities of former excavators. This crater, as well as the more level portions of the bench, was covered by a dense growth of cactus, the plants apparently of great age. This would indicate that no looting has taken place here for many years.

The debris over a large part of this terrace was much decomposed and reached to a depth of seven feet. Near the north-eastern brow, the trenches disclosed a cemetery at the lower levels. The location of the skeletons, practically at the level of the original surface, their advanced disintegration, and the evidence offered by the stratification of the superimposed soil, all testify to the great age of these graves. I have little doubt that the skeletons found by us on this terrace are the remains of some of the first settlers at this point.

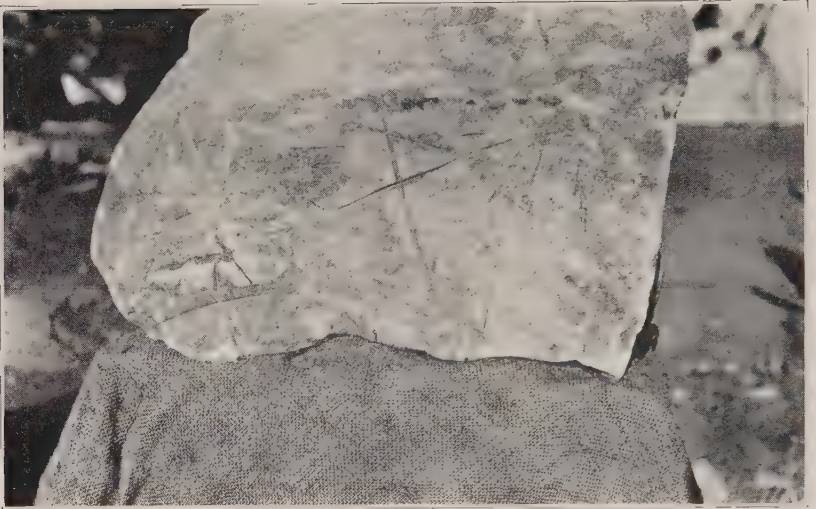


Various Styles of Necklaces Worn by the Canaliño  
of the Channel Islands

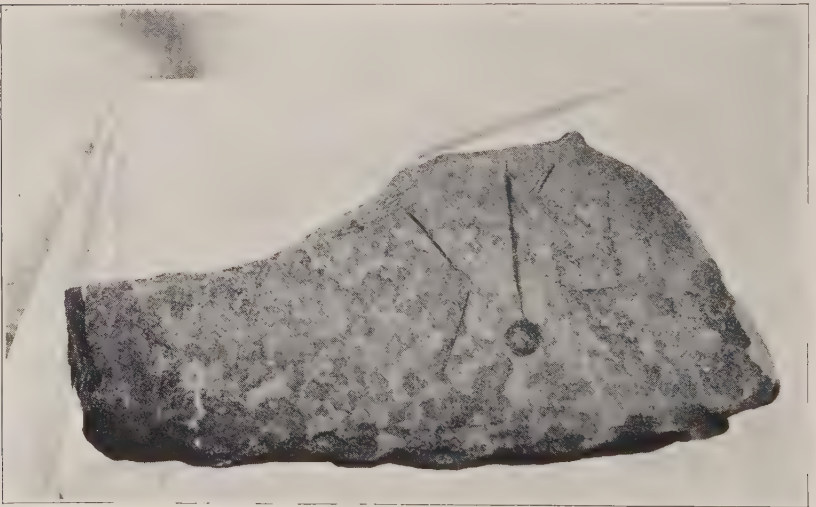


Part of the Northern Shore Line of Santa Cruz Island, West from  
Arch Rock. Upon the crest of each of the ridges  
shown was once an Indian village

PLATE 34



Inscribed Grave Marker, Santa Cruz Island. Nineteen inches in horizontal length



Inscribed Grave Marker, Santa Cruz Island.  
Twenty-three inches long

There was no evidence, however, that these oldest inhabitants were in any way deficient in culture, for the artifacts found with these frail bones compared favorably with those of the later days of this people. The most striking of the personal adornments were rock crystals, and large disc-shaped beads of red stone, closely resembling catlinite. Bone whistles and highly polished symmetrical pestles were also prominent features of this ancient burial plot.

Thirty feet lower than this last described terrace and capping the brink of the sea cliff, is the fifth of the series of benches, counting from above. This terrace is much more narrow and prolonged than the others. It is fairly deep in camp debris, the refuse averaging about four feet in depth, probably because this was the first station where the harvesters of sea food might rest temporarily and eat, and because to their debris heaps was added the refuse from the hillside above.

Hearths were plentiful on this ledge, and the ashes from long-maintained fires were of considerable depth. No evidence was found that any of the common features of established village life were ever permanently located on this lower bench. Immediately below it are many tide-washed rocks, which are still occupied by myriads of shell fish. These doubtless, in times past, accounted for the establishment of this many-terraced settlement. The securing of fresh water must have been a very serious problem at this site.

About one-third of a mile east of Valdez Cove, a rounded ridge ends at the low sea cliff. The crest of this ridge is covered, for quite a distance back from the edge of the cliff, by typical camp site debris. This does not, however, extend to any great depth, being in no place over sixteen inches in thickness.

The story of this site remains an enigma; for there can be no little doubt as to its great age and wide extent, yet the amount of refuse present does not indicate a long continuous residence here. It was probably occupied briefly during certain seasons.

One-fourth of a mile northeast of the last mentioned site, one hundred feet above the tide, on the crest of the sea cliff and flanked on either side by a deep ravine, is a deep accumulation of camp refuse. This is not extensive in area, measuring only three hundred feet in length by ninety feet in breadth.

This is another location where one may view the havoc wrought by earth movements.. Some time in the past, a land-slip of considerable proportions greatly modified the original contour of the northern and northeastern sections of the site. One can still plainly see where a great diagonal rent in the cliff divided the village, hurling the debris from the outer section seaward. This jumbled mass now lies at a much lower level, in three distinct heaps or terraces.

The escarpment of the outer edge of the portion that remains in place, shows a depth of eight feet of distinctly stratified camp refuse; this is of the usual type, but no artifacts are to be seen in the exposure. Several trenches sunk in the landward side of this escarpment revealed only duplicate records of the story presented on its face.

The examination of the mass of wreckage below the break was anything but satisfactory, everything being in such confusion that only the most painstaking care could discover any meaning. It was not unusual to find great blocks of subsoil resting above masses of the camp refuse, the original structure having been completely inverted. In other places, these formations lay prone, with the original horizontal stratifications now standing perpendicular and greatly distorted.

At one part of this wreckage, near the southeastern angle, a great many disassociated fragments of human bones were unearthed. This we take to be the ruins of the former cemetery, which, previous to the time of the land-slip, had been at a much higher level and somewhat farther inland. In the midst of this confused burial plot were several stone slabs which had once served as grave markers. Two of these are worthy of special note. No. 1 is twenty-three inches in length by eleven inches in width, and has, upon its surface, a distinctly incised design. There is, at present, no means of determining which was the upper side, but in whatever position the slab is held, I am impressed by the simple strength of the design and feel impelled to consider it an inscription. It is very reminiscent of early Chinese chirography. Slab No. 2 is nineteen inches long by thirteen and one-half inches wide, and bears a much more complicated, although far less pleasing design than the other stone. The most striking features of the design are repeated, cross-like figures in deep incisions, and many less pro-

nounced scorings, which run parallel to the uprights and arms of the crosses. There are also many markings of a different character. See plates ~~42 and 43~~. 34

In the midst of the indescribable confusion of this destroyed cemetery was found one skeleton, absolutely in place, and with every evidence of having been formally buried where we found it. It is certain that no one ever resided at this site, after the great catastrophe that destroyed a large portion of it. Our first impression was that this cataclysm occurred subsequent to the abandonment of the village, but if this were so, how are we to account for the presence of the manifestly old burial, in place, amidst the wreckage of the former cemetery? Does it not seem probable that the catastrophe occurred during the lifetime of the settlement, and that at least one victim was laid away among the scattered bones of his ancestors?

From the wrecked portion of this site, several representative artifacts were recovered. These include drills, arrowheads, a round blank for a shell ornament and several stone implements. I found no evidence that this place had ever before been disturbed by excavators.

Lying about one hundred yards to the northeast of the last described site, across a deep and rather abrupt-sided ravine, is a long, narrow tongue of land, with a deep ravine on either side and the sea cliff bordering it on the north. The crest of this ridge, beginning at the cliff and extending inland, displays characteristic camp refuse for a length of three hundred feet and an average width of seventy-five feet.

My superficial examination of this site, during the preliminary survey, had disclosed several large, flat stones, projecting above the surface near the center. These I had taken as indicating the presence of a cemetery at that place. Our initial excavations were made in the vicinity of these stones, and caused me to change my conclusions. A hard ellipsoid of soil, entirely devoid of stones or camp refuse, surrounded this series of slabs, which had evidently originally stood on end, partly buried in an irregular, formless cluster. It was clear that this had once been a ceremonial platform. The slabs showed no evidence of ever having been decorated in any manner.

Beginning at the northwestern border of this ellipse, and extending to the brow of the bluff, the soil was found to be

thickly set with fragments of human bones. None were in place, nor was there depth enough of soil, over most of the area, to accommodate a grave. At the crest of the bluff we eventually developed a small, circular area, about thirty-five feet in diameter, that showed a depth of about two feet of artificial soil. This plot was found to be so thickly filled with skeletons and disassociated human bones, that many more could hardly have been contained in the tract. This discovery explains the presence of human fragments found over the wide area that reaches from this burial plot to the ceremonial circle. When the soil of the cemetery had become so full of human remains that it could no longer accommodate them, the residue was allowed to scatter over adjoining territory and was eventually covered by other camp refuse.

The cemetery was so thickly set with human remains that it was often difficult to distinguish between elements that were in place and those that had been reburied. There was absolutely no classification of the graves, man and woman, child and adult, shaman and chief were all closely associated and inter-mixed.

Several of the female crania from this plot exhibited slight flattenings, as though malformed by a carrying board, but as the male skulls show no evidence of this tendency, there is room for conjecture here. It is even possible that these malformed females may have been introduced from extraneous tribes. It is also worthy of note that a great deal of decay and disease was noted in the dentition of this group, a condition that had heretofore been of rare occurrence among our specimens. Several of the skeletons bear indisputable evidence of violent deaths, the many ante-mortem breaks in the bones suggesting mishaps among the treacherous breakers at the base of the cliff.

The skeletons were invariably found flexed. In the majority of cases they were face down, with heads pointing towards the southwest. The remainder were very diverse in their positions. Many were found fairly surrounded by masses of unwrought *Olivella* shells.

Few household utensils were found here, aside from the asphalt-plugged abalone shells that were used as containers for food, paint and jewelry. There were, however, many weapons and articles of personal decoration. Among the latter, it was not



The Great Arch Rock Mound, Almost Completely Covered with  
Cactus and Rich in Relics of Former Occupants



Lady's Harbor, Santa Cruz Island. Upon the shoulder of the  
headland beyond our boat was once a prominent  
village of the Indians



Canaliño Necklaces, Santa Rosa Island



Elliptical Paint-Mortars and Accompanying Pestles, Santa Cruz Island. Each mortar measures seven and three-quarters inches in length

uncommon to find the canine teeth of the sea-lion used as pendants. Red paint was present in profusion, the soil being stained with it. We found no trace of white contact with this settlement, or of matting, basketry, etc., and the bones were all in an advanced state of decomposition. In fact, the village bore every mark of having been deserted for many decades before the advent of the Caucasians.

About one mile to the east of the "cueva," a rather abrupt round-topped ridge is a prominent feature of the landscape. This ridge is flanked, on the east, by a very narrow, deep, wooded gorge, at the bottom of which a stream of fresh water reaches the sea, by a series of small waterfalls. The gorge, as it approaches the sea, narrows, until its throat in the sea cliff is only a few yards wide. This break in the cliff is nearly opposite Arch Rock, a prominent feature of the coast, a few hundred yards off shore. There are no facilities for boat landings here. From the cliff, back for a considerable distance, the ravine is impassable.

Like many others in the vicinity, the above-mentioned ridge rises from the brink of a cliff, in a series of benches or terraces. Upon each of these various elevations, for a distance of a quarter of a mile back from the sea, was abundant evidence of former occupancy by Indians. The refuse found upon the lowest bench that tops the cliff, one hundred feet above the surf, was shallow, apparently indicating that it was only an occasional feeding place. Twenty rods inland, at an increased elevation, the deposit of debris was much more pronounced and indicated an established settlement. From this bench, the ridge rises very abruptly, culminating in a rather pointed, round mound, the apex of which is about three hundred feet above sea level. This mound is one of the most striking features of the surrounding landscape. The crest and southern slope are entirely covered by a dense and almost impenetrable thicket of cactus.

We cleared a space near the crest of this great mound and drove a series of trenches through. From the turning of the first spadeful, we were assured of the value of this location as a field of study. From the surface to a depth of sixty inches, there was an unbroken deposit of stratified camp refuse, greatly advanced in decomposition. The upper strata showed alternate layers of hut-side material and refuse-heap debris. Below these

was found a more homogeneous stratum of material, very similar to the "cemetery soil" encountered elsewhere.

Our initial trenches uncovered characteristic artifacts and disassociated human bones. There were no burials in place. These first trenches had served to give an indication as to the probable location of the various divisions of the village, so that we made our next clearing and series of trenches in the midst of the former cemetery. This proved to be of chief interest as a proof of the time that had elapsed since it was established.

The series of skeletons showed that this burial plot was used indiscriminately for all classes. They also showed that this place dates back to the beginning of the settlement of the island. All of the bones were much decomposed. Many of the graves were sunk in the original surface, and refilled with material of the subsoil, the debris of the village lying in unbroken stratification above them. It was evident that burials of this class were made before the camp debris from the residential part of the village had encroached upon the cemetery portion.

One of the oldest burials found warrants a detailed description. This skeleton lay with back down, in a reclining position, the spine being at an angle of about thirty degrees. The legs were bent and the knees pointed upward, the thighs being at right angles to the spine, and the heels resting near the pelvis. The right arm was flexed across the abdominal region. The flexed left forearm supported the back of the head. A more perfect posture to symbolize final rest would be hard to imagine.

Another burial made at a somewhat later date has preserved for us the story of a grim tragedy. Coiled in a circular position were found the remains of a woman, aged somewhere in the twenties, the third molars were present and the teeth were very slightly worn. The pelvic regions were intact. The lower limb bones were broken in many places, and some of the dorsal vertebræ were absent. The ribs, sternum and clavicles were crushed, and there was a fracture of the lower jaw. No artifacts were present. There can be no doubt that this young woman had met with a violent death. We may see, in the mind's eye, a young shell-hunter who lost her balance and fell upon jagged rocks, to be caught by terrific breakers which mangled her form to a shapeless wreck. The remains, rescued later by friends,

could not be placed in the conventional posture, and were simply coiled into the shape in which we found them.

The artifacts found with the majority of these burials conform, in type, very closely to those found throughout the islands. Wampum made from *Olivella* shells, and cylindrical and orbicular beads of bone predominated, although heavy beads of stone were fairly common, and carefully wrought spangles of abalone shells were occasionally found. Articles formed from steatite and staurotide were noticeably lacking in all these early graves. By far the most common household remains were small circular mortars and carefully fashioned, small, tapered pestles.

One trench was extended beyond the confines of the cemetery, at the place that had been occupied by a "temescal." A sunken, stone-encircled structure was traced that had been approximately fourteen feet in diameter, the floor having been forty inches below the present level of the surface. This floor was probably not so far below the surface originally; the encroaching debris had doubtless aided materially to increase its depth, as time passed. In the center of the circle was a pronounced heap, over twenty-four inches in thickness, consisting of alternate layers of ashes and charcoal, some of the latter being as much as three inches in diameter.

The great effort to clear and develop even a small area of this cactus-armored site, caused us to desist from work here, as soon as the important features were located. We proved conclusively that the crest of the mound had once held a cluster of huts, probably as many as thirty. Immediately below these huts, on the southern slope, there had been established a cemetery, during the earliest period of the community's existence. This burial plot was, in the beginning, separated from the residential portion by a narrow strip of unoccupied land. As time passed, the debris from the village above gradually intruded, and we found the later burials resting in this formation. At a still later period, this burial plot ceased to function as such and was utilized as a building site for several huts. From earliest times, a sweat-house had occupied the northwestern edge of the cemetery and from the evidence of the broken strata at this point, I believe it was in use until about the end of the occupancy of the village. Below the southern cemetery on the southern slope, for a distance of fifty or sixty yards, there had

been a thick cluster of huts. These were of a somewhat later period than those that occupied the crest, farther north, and probably represented an extension of the site, as the population increased. No trace of a dance floor was found. As only a small portion of the site was explored, there doubtless remain in it, untouched, many items of great interest. Nothing was disclosed by our party that would indicate that the people had ever been in contact with the whites. Neither did we find any evidences of excavations having been carried on here previous to our advent.

From the southern foot of the last described deposit, a rather low extension of the ridge presents no evidence of ever having been occupied. From this barren section, there begins a gradual rise, which culminates in a second mound, much smaller and not nearly so high as that to the north. The crests of the two mounds are about three hundred yards apart.

Over the sides and crest of the smaller mound is spread a thick blanket of camp refuse, ranging in depth from four to five feet. A large part of the crest is occupied by a dense growth of cactus. The southern slope eventually flattens out to a level bench. This is devoid of cactus, and our trenches disclosed that it is covered to a considerable depth with a fine deposit of camp material, probably wind-blown from the higher mounds.

Our rather exhaustive trenching operations showed that the lesser mound had probably been occupied up to a much later date than the larger neighboring rise. In fact, it may well have been the successor of the section farther to the north. It is certain that, for a long period antedating the close of the occupation of the island, this smaller mound had been the scene of great activity. Here, as elsewhere on the island, shell fish had formed the major portion of the food supply, although fish and sea mammals had also been utilized. Large fires had been maintained almost continuously, forming immense beds of white ash.

The cemetery occupied the western brow of the mound. The plot appears to have been dedicated largely to females and children, and was very densely occupied. To make this statement more emphatic I will quote from my field notes of July 13th, 1927:

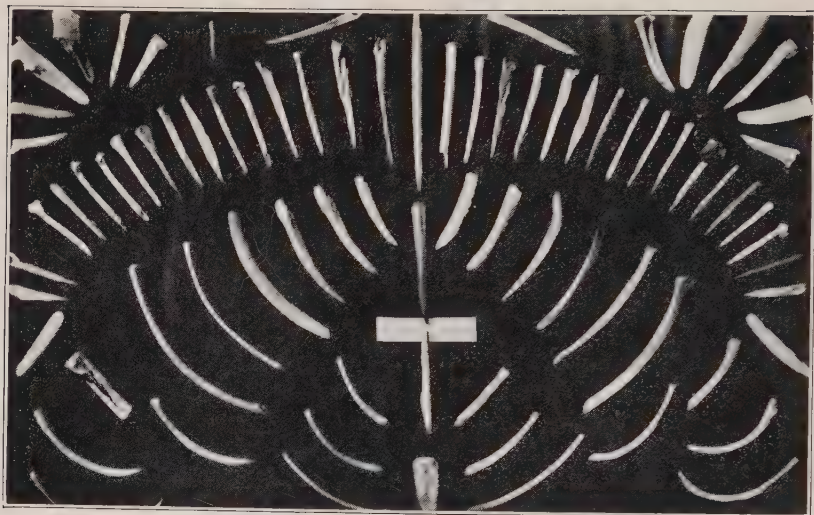
“Pit Sm. 7. C. (four by six feet in area) A continuous mass of human wreckage. Fifteen skeletons in position—the



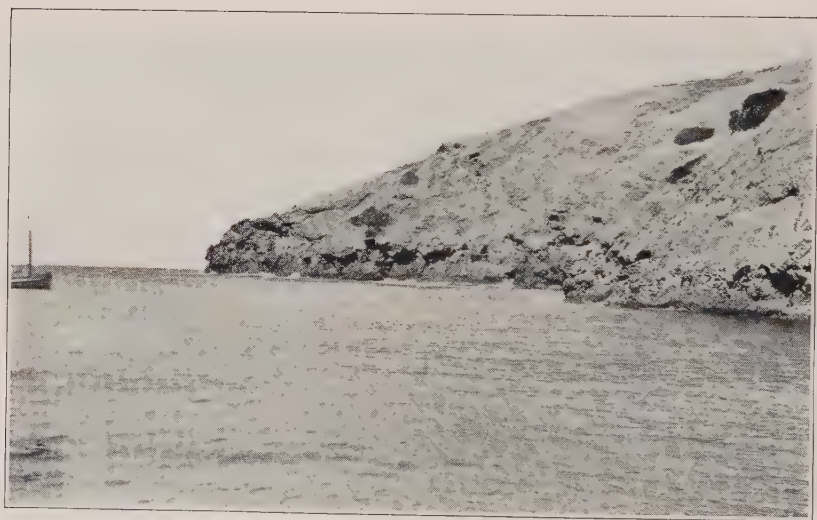
Medium Sized Mortars and Pestles from Santa Cruz Island. Largest figure is eight and one-half inches in diameter



Series of Spangles and Pendants Cut from Mother-of-Pearl.  
Canaliño



Bone Implements from the Channel Islands



Upon Upper Terrace, at the Right, Partially Overgrown with Cactus, Is the most Prominent Refuse Heap in the Vicinity of Lady's Harbor, Santa Cruz Island

lowest ones lying at a depth of forty-four inches beneath the surface. The skeletons at the lower levels have every appearance of being much older than those encountered above . . . Of the fifteen skeletons, six are of small children, eight are of women, and one adult male is present. There is also present one re-burial of bones that had been disturbed by later burials."

The artifacts taken at this place were quite diverse. Well formed basket-mortars and pestles, containers formed of plugged abalone shells, fish-barbs and a wide range of patterns in personal adornment, were found in abundance. Most of the latter were intricate designs, cut from abalone shell and pierced for suspension. I believe that no skeleton found here was entirely unaccompanied by some form of decoration.

Two graves in this plot seemed to show that twins and their mother were put to death. I have elsewhere discussed the possibility of this strange and gruesome practice.

We found no evidence of white contact with this group, nor were there any signs of the place having been disturbed, previous to our advent.

About one mile inland from the last described site, and high on the side of the same gorge, is a great rock shelter, which for a long period afforded protection to a group of the islanders. I made only a superficial investigation here. A great mass of food refuse, principally sea shells and ashes, has trickled down the side of the canyon from this shelter, but apparently little now remains *in situ*. I believe it to be more than likely that the floor of this cave was thoroughly ransacked by some expedition many years ago. The reasons for the establishment of a settlement at this place are evident. The great rock offered perfect shelter during inclement weather. An abundance of fresh water flowed in the gorge below. Numerous oak trees and great thickets of cactus near-by furnished food. Only in securing their chief article of diet, shell fish, were the villagers seriously handicapped.

From this shelter, the chief ridge of the mountains rises steeply to the south. A winding sheep trail leads to the top, one-half mile west of the crest of Mt. Diablo, the highest point on the island, twenty-four hundred feet above sea level. Below the ridge there is a gorge that leads from the southern slope of the mountain. Here, beside a spring of fresh water, surrounded

by a forest and perfectly sheltered from the winds, was one of the few well-developed, interior village sites. This is about one mile northeast of the well-known site on the crest of Buena Vista plateau, the highland that separates the central valley from the Cuesta Valley.

Returning to the northern shore along the eastern side of the shelter under the gorge of the rock, I examined the two small but highly developed sites that crown the cliffs to the northeast of Arch Rock. These are separated from each other by only a few rods, and are within hailing distance of the great mound site, directly south of the rock, but a long walk is required to reach one from the other, owing to the impassable gorge between them.

About one-fourth of a mile to the northeast of the last described two small sites are two others, much larger, and closely adjacent to one another. The largest of these is crescent shaped, following the crest of the bluff that overlooks the sea. This site is about four hundred and fifty feet in length by about one hundred and fifty feet in width. Over the denuded surface was scattered a vast amount of camp site refuse, chiefly sea shells. There were also many fragments of mortars and flint chips and a few perfect pestles.

Exhaustive explorations were made at this place by means of systematic trenching. Over the larger portion of the site, the artificial soil reached a depth of only about two feet. Owing to the exposed position, it was difficult to determine the amount of erosion that had taken place here, but it has doubtless been great. No trace of former hut sites or other enclosures were found. The cemetery was located near the center of the site, at the place of greatest elevation. The artificial soil in the burial plot averaged about thirty inches in depth. I ascribe this great depth of soil and altitude of surface to the presence of large numbers of grave stones which, in a measure, served to retard the erosive action.

Within the confines of the cemetery were found a great number of skeletons; these were, in places, very closely associated. There appears to have been no effort made to separate the burials into classes, both sexes and all ages being intermixed. Accompanying the skeletons were many interesting artifacts, although none departed radically in design from those taken elsewhere

on the island. Red paint was a marked feature of nearly every grave, the soil in many places being tinged with it. Several mortars and pestles, deeply stained with red, were taken here; these had evidently been employed in the preparation of the pigment. Elongate boat-shaped mortars appear to have been a favorite form with the people of this village. Several larger, round mortars had probably served as mills for the reduction of acorns. Many beads and other forms of personal decoration were present as well as bone utensils in profusion. Among the latter were many minute, bodkin-like forms, probably employed as fish barbs. Of special interest were the asphalt linings of baskets, the perishable parts of which had long since vanished. These linings showed the texture and weave of the basket perfectly.

Several flint weapons of a high order of workmanship were found associated with male skeletons in this cemetery. In one instance we found, firmly imbedded in the anterior face of the central lumbar vertebra of a male skeleton, a fragment of an arrowhead that must have passed through the abdomen of the victim, before it lodged in the bone. Many fragments of flint showed that this site had been the scene of the active manufacture of weapons.

The closely adjacent, smaller site is a few hundred yards to the northeast, upon a bench of land seventy-five feet lower in altitude. This site culminates, near the center, in a low, double-pointed mound of debris. Several test-pits, which were sunk in this site, established the depth of the debris as about five feet. Great quantities of flint chips and cores were present here, and many fragments of broken artifacts strewed the surface.

One mile and a quarter east of the "Cueva," a long, narrow, well-protected harbor for small boats penetrates the northern coast-line. This is known as "Lady's." A small arm of the bight is called "Baby's." A deep ravine leads into the mountains from each of these coves. The western ravine is well watered and forested. The ravine that enters "Baby's" cove bears a trickle of water but is devoid of trees. The sides of this ravine are very abrupt.

One hundred feet above sea level, on a bench of the shoulder of land that guards the entrance of the harbor on the west, is

a well-developed village site. The convenience of this location to one of the favorite camping places for visitors has exposed it to frequent raids by relic hunters. There appears to be not one cubic foot of the rather extensive refuse heap that has not been turned over. I believe that there is now nothing of interest to be learned there.

Beginning a few hundred yards back from this beach, near the floor of the canyon, climbing higher and occupying various levels and rock shelters, until the crests of the ridges on either side are reached, is a succession of small, ancient camp sites, at least six in number.

Upon the crest of the ridge, four hundred feet above sea level, is the much eroded site of a village of considerable extent. Opposite this the gorge forks. On the northern brink of the western fork is a rather large camp site, over which the debris appears to be of good depth. Upon the crest of the point that rests between the two forks of the ravine, is another well-developed camp site.

The great shoulder of land that forms the eastern border of "Baby's" cove, bears the most noteworthy remains of ancient settlements in this neighborhood. In many ways, this point closely resembles the eastern border of Valdez bight. Beginning at a height of about four hundred feet above sea level, one-quarter of a mile back from shore, this promontory drops, by a series of terraces, as it approaches the low sea cliffs. Upon each of these terraces are great deposits of the food refuse of former residents. Upon the central terrace, about a hundred and fifty feet above the surf line, we found that an unbroken deposit of this refuse extended to a depth of nine feet. Excavations had been carried on here by others, so that the deposit offers little of interest to the student. Our trenches showed that an almost unbelievable number of human bones had been handled and re-handled, until they are now only a mass of fragments that fairly fill the soil over a wide area. The original stratification of the soil has been entirely destroyed.

To the east of this promontory, on the opposite side of a deep gorge, is another settlement site, smaller in area and much eroded. Owing to the difficulties experienced in reaching this site, we made no excavations there; it is very probable that it has been avoided by others for similar reasons.

One morning, while we were making our regular climb up the face of the bluff that overhangs "Baby's," one of our crew lost his footing and fell from a cliff. As he lay on the narrow ledge which had checked his plunge, only a few feet above the floor of the gorge, slowly regaining control of himself, he noticed bones protruding from the shallow soil where he lay. He returned to the place after his recovery, and unearthed the complete skeleton of a young female Indian. This, I believe, to be the most unusual and lonely place from which we took human remains.

From the last described village site, I made a brief survey two and one-half miles to the eastward, during which I succeeded in locating thirteen village sites. With one exception, these were all upon the crests of cliffs that overlooked the sea. Five of these sites were of considerable extent and seemed to have a great depth of camp refuse. The others were much smaller and probably represented only occasional camping places. At least six of the sites, three of them important, are doomed to complete destruction by quarrying operations.

A little less than one mile inland, on the western side of a high ridge that separates it from the quarry, is the largest and probably the most important site. It is nearly circular in outline, and about two hundred yards in diameter. It has an ideal location, offering abundant water, protection and nearness to food supply. One mile farther inland, on the high land that fringes Mt. Diablo on the north, are two village sites of considerable importance, about one-third of a mile apart, each near the head of one of the deep gorges that run into the sea. These lofty sites are remarkable for the great numbers of flint spalls that litter the surface. They were probably quarry towns in prehistoric times.

One mile to the east of the district just mentioned, another gorge breaks through the sea cliff and forms a landing place known as "Dick's." A series of capacious rock shelters lines either side of the gorge for a distance of one hundred yards. Then begins a series of fresh-water pools that could have supplied a large population with water. A long chain of settlement sites reaches from the crest of the sea cliff to the north of the landing, along the bench, one hundred feet above the rock shelter, and fringes the pools on either side for a fourth of a

mile. About two hundred yards back from the beach, on a narrow terrace slightly above the level of the pools, was a small cemetery. Our investigations showed that this had been used for both males and females. A few pieces of personal adornment found there proved to be of a high order of artistic achievement. These were beads of staurotide and engraved bone.

Across the ravine from this cemetery was a highly developed section of the settlement, backed by a perpendicular igneous rock. On the face of this rock were several clusters of parallel scorings, a very interesting example of Indian persistence, as the stone which retains these records can only be worked by a great expenditure of effort. These parallel groups of short grooves are either perpendicular, oblique or horizontal.

One-half mile north of this inscribed rock, a long tongue of rock extends into the ocean, flanked on either side by a small, deep arm of the sea. The top of this rock is about forty feet above the tide. It is covered, to a considerable depth, by camp-site refuse, chiefly sea shells and ashes. The original mass has been greatly reduced in bulk through erosion.

One-third of a mile southeast of "Dick's," on the rounded crest of a hill, six hundred feet above sea level, is a village site of circular outline, about three hundred feet in diameter. Several trenches, driven into this heap, disclosed a depth of artificial soil of about thirty-eight inches, the lower twenty-six inches of which consisted almost exclusively of ashes and burned shells, indicating that great fires had burned there for long periods. We could locate none of the accustomed prominent features of village life here. I look upon it as another example of the lookout-signal stations that appear to have been present, at short intervals, near the northern coast.

One and three-fourths of a mile east of "Dick's," two canyons enter the sea, separated at the mouth by a very narrow wall of rock which, at its outer extremity, is fifty feet in perpendicular height. This extremity is nearly separated from the rest of the division wall by a deep fissure. Upon the small, flat top of this pinnacle still remains camp refuse to a depth of two feet, showing that at this most illogical of dwelling places, a group of the islanders had for a long period resided.

This place is known to mariners as Twin Harbor. Between

it and Dick's extends an almost unbroken line of former settlement sites. Within the cluster may be traced almost every type of site to be found on the islands. Numerous rock shelters are present, each showing the unmistakable marks of occupancy. The floor of one great shelter, about midway of the group and back a short distance from the cliffs that overlook Orizaba cove, is deep with kitchen midden, made up chiefly of ashes. This shelter displays rock painting, one of the very rare instances of its occurrence on the islands.

We made no excavations of any of the sites of this locality, but found sufficient evidence, upon the surface, to fix this cluster of settlements as being one of the most important upon the island. Not only are the sea cliffs capped by a continuous kitchen midden for a long distance up and down the coast, the deposit reaching inland for quite a distance, but there is also a low ridge skirting the western side of the ravine that enters Orizaba, which is capped with kitchen refuse for many rods back from the edge of the cliff.

The sides of the ravine are honeycombed by small rock shelters which, in the majority of cases, bear evidences of having once been occupied. The larger rock shelter to the east bears indications of burials in the mass of debris that covers the floor. Over the territory inland from these sites, almost to the crest of the mountains, there are scattered village sites, although I found none that seemed to be as important as those upon the sea cliffs. There is one at the forks of a gorge, a mile or more to the south of the painted rock shelter, which I believe to be well worth exploring in detail.

One mile and one-fourth southeast of Twin Harbor, a deep-water cove indents the northern shore line. This is known as Pelican Bay. Along the crest of the hills which encircle it are perched the cabins of Eaton's Camp, the only place on the islands where there are accommodations for guests. A long tongue of barren rock skirts the southeastern side of the cove, dropping sheer on all sides, except where a narrow neck connects it with the bluffs on the southwest. The flat top of this rock is thickly set with the cabins of the camp. The walks and flower beds around these display masses of ancient camp debris. Little may be learned from the deposit now, owing to the great disturbance to which it has been subjected. On the side of the

bluff to the southwest is still to be seen, in place, a fairly extensive section of the debris heap.

Northwest of Pelican Bay, at a distance of one-third of a mile, a small ravine enters the sea. On either side of the mouth of this canyon, topping the low cliffs, are the vestiges of rather small village sites.

About one-fourth of a mile southeast of Eaton's camp stands a high, round-topped hill. The crest of this hill, where it is crossed by the trail to Prisoners Harbor, shows a circular outlined deposit of kitchen refuse, apparently of considerable depth. This undoubtedly marks the site of another of the lookout-signal stations of this coast.

One-half mile east of this station, on the crest of the cliff that overlooks a small, rocky bight, is a small, greatly eroded camp site.

One mile and a half southeast of Pelican Bay is Prisoners Harbor. This is the only place on Santa Cruz Island that offers any facilities for landing except through the surf. Prisoners Harbor is the outlet to the sea of the central valley, which carries the largest stream of water on the island. This fact is, doubtless, partly the reason for the existence there of one of the greatest deposits of camp refuse to be found along the coast.

A great central encampment once occupied the floor of the gorge, near the surf line and only a few feet above it. In recent years engineering activities have straightened the channel of the creek, cutting through the deepest portion of the debris heap. The original size of this central heap was four hundred feet long by one hundred and fifty feet wide.

The escarpments left at the sides of the new creek channel show a depth of over thirteen feet of stratified debris, from which at various levels artifacts protrude. There is, however, no appreciable difference between the objects found at the various levels, except in their state of preservation.

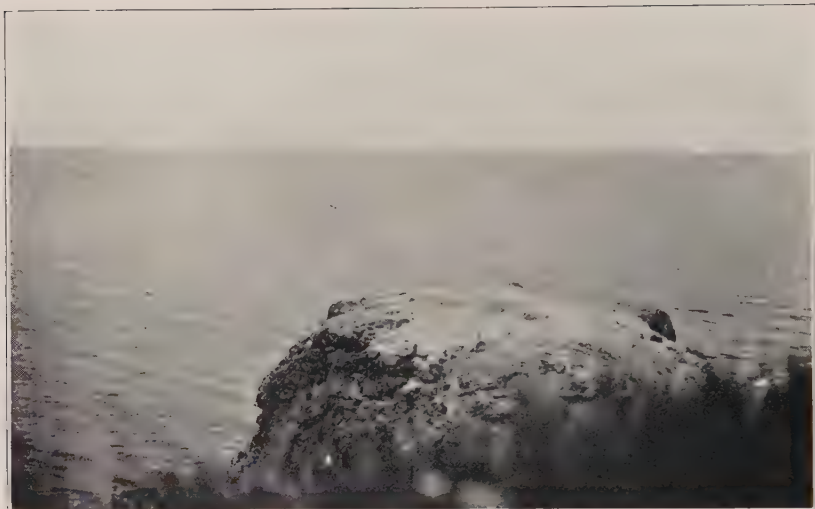
The escarpment upon the eastern side of the new channel bears all the marks of having once been the seat of great manufacturing activities. An immense accumulation of flint, running through every stage of weapon-making technique, is present. Spalls, cores, chips, flakes, splinters and blanks are present in thousands, and several completed arrowheads were also



Our Camp at Dick's, Northern Santa Cruz Island



Sandstone Bowls from Santa Cruz Island. Largest is twelve inches in diameter



Kitchen Debris Capping the Cliff Point Which Separates the  
Twin Harbors, Northern Santa Cruz Island



Eatons Camp, Pelican Bay, Santa Cruz Island. The entire  
promontory is covered with ancient camp-site debris

found. There were also present, in the refuse of this locality, debris and drills that indicated that many of the strange stone rings were produced there.

From the great central heap, the site extends in every direction except seaward, the eastern and western wings occupying the crests of high bluffs, and the southern extension following the floor of the gorge. The entire site is about one-half mile long, east and west, by thirty rods wide in the center. This location is indicated on Kroeber's map as "Nimilala."

The central valley that finds outlet at this place, besides the two sites previously mentioned near the western end, has at least four others scattered along its length, two being near the central ranch house. A rather careful examination was made of the surface at each of these places, and in every case my investigations lead to the same conclusion. These interior sites are all small. The deposit of debris in each instance is quite shallow. All are of comparatively recent date, and all contain objects manufactured by the whites. To me it appears certain that these are the last places of refuge before the people finally vanished.

For a distance of three miles east from Prisoners Harbor I found no trace of former occupancy along the barren northern coast. Then begins the rocky shore line of Chinese Harbor, the favorite shelter for fishing vessels during the southeasters. Capping the southern and southeastern cliffs that face this bay are at least five former village sites, each of considerable extent. I think it more than likely that other and smaller sites are to found here, but the difficulty of landing on this coast and the extreme ruggedness of the land make a thorough survey of the locality a matter of days, instead of the hours that I had at my disposal. Two miles of shore line to the north of Chinese Harbor is of such character that I doubt if the Indians ever occupied this forbidding region.

From Potato Bay to a point opposite Bird Rock, a distance of two and one-half miles, a series of five quite extensive village-sites occupies the crests of the bluffs. As a rule, the cliffs that face the sea here are almost perpendicular; I think it probable that the people along this bit of coast reached the shore by way of the canyon that enters Scorpion Bay. There was evidence of much flint chipping in these five villages.

This completes the list of the sites that I investigated on the northern shore and in the central valley of Santa Cruz.

A chain of nine small camp sites begins at San Pedro Point, the easternmost extremity of the island, and extends for about three miles in a southwesterly direction along the eastern shore, ending at the small promontory that forms the southern boundary of Smugglers Cove. The restricted size of the sites appears to be due to the scarcity of shell fish along this coast, probably due to the fact that this shore is exposed to the severe south-easters.

About midway of this chain of camp sites, a deep, narrow cleft in the lava formation opens upon the sea. For several hundred yards back from the surf line, the nearly perpendicular walls of the gorge are pitted with small grottos, a few of which may be easily inspected. Others are very difficult to reach without the aid of ropes and ladders. There are dozens of these small caves, many of which exhibit evidences of having furnished shelter to the Indians. A short distance south of this gorge and only slightly above tide level, a cave indents the face of the sea cliff. This is now the home of foxes, and the debris from their feasts and the detritus from the walls and ceiling of the cave form a thick blanket over the floor. Beneath this blanket is a mass of the kitchen debris of the Indians. A quarter of a mile southwest of this cave, a small well-developed camp site occupies the crest of a low bluff that borders the cove. Over this small area the debris is of considerable depth. A small cemetery is present here, still apparently untouched.

From the most southern of the above mentioned cluster of camp sites, the southern slope of the island extends westward, for a distance of eleven miles, bleak and uninviting. The wall of cliffs rises directly out of the sea without a beach. A few small ravines, devoid of water or trees, break this wall but offer no landing places. At only two of these locations do even hardy fishermen attempt to go ashore. If village sites ever occupied these barren cliffs, their remains have become so obliterated that I failed to locate them. There is, however, a rather extensive and well developed site, high on the ridge of the hinterland, occupying the western foot of the highest hill in the eastern part of the island. This site is fairly littered with flint chips and cores. The bed from which the chert was taken

is only a short distance from the borders of the village. The flint work was probably the chief reason for this settlement.

At the western end of the barren strip of coast line, a great buttress of rock protrudes into the sea, behind which small boats may find a harbor in Albert Anchorage. A small canyon breaks through here. About one mile back from the shore, the floor of the ravine shows evidence of the former existence of a small village.

One-half mile to the west of Albert Anchorage, a small, well-protected bay indents the shore. This is a favorite refuge for fishing boats in time of storm, and a small colony of fishermen is usually to be found here. Bordering the entire northern shore of the cove, for a distance of about one-third of a mile, is a vast accumulation of camp site debris, which at several points reaches a width of over one hundred feet. This great shell heap is cut in half by a mountain gorge that enters the sea here, in the bottom of which, during a part of the year, there flows a stream of fresh water. To the west of this stream bed, the land rises gently by a series of low terraces. Upon the lowest of these terraces, a part of a former Indian village was located. Rather extensive trenching in this section developed the fact that it had been quite thoroughly ransacked by former excavators. In a few isolated spots, we found the soil undisturbed. A few skeletons and artifacts were found but offered nothing of great interest.

High above this section of the village, to the northwest, is a small rock shelter that displayed camp debris upon its floor. Examination of this deposit proved it to be very shallow and nearly devoid of interest. It is probable that this shelter was used by the Indians only at rare intervals. Following the course of the creek inland, a small village site was found on the floor of the canyon, about one-fourth of a mile from the surf line. The food refuse here was rather sparsely distributed, but reached a depth of two feet, being scattered through a very hard, gumbo-like formation. Apparently, this spot was used as a camping place for brief periods, at certain seasons, for a long series of years. At no time had a settlement persisted here, for a sufficient length of time to establish a bed of real kitchen-midden material. One-fourth of a mile higher up the canyon is another small camp site, similar in every respect to that last described.

This site is about one-half mile almost directly west of the isolated refuse heap in the ravine that enters Albert Anchorage.

Beginning at the beach on the western side of the mouth of the creek and extending upward by easy stages towards the east and northeast, is by far the most important section of this rather extensive, refuse-strewn site. Over this entire area are great masses of camp refuse, consisting largely of shells and ashes, with a noticeable content of fish, bird, and mammal remains. Among the latter, there is a marked preponderance of whale bones. Our crew of workmen carried out extensive trenching here with extremely interesting results.

We at once discovered that we were not the first to sink pits into the site. Irregularly spaced over the heap were the scars of former trenches. At such places, only meaningless confusion was revealed. One depression, however, turned out, to our surprise, to be not the result of former relic hunting. About a sunken circular space was arranged a series of six fragments of whale ribs and three sections of poles, probably of manzanita wood; these all stood upright in a fairly perfect circle, each having probably once extended above the surface of the soil to form the side supports of a hut. This circle was ten feet in diameter and had an ash-buried hearth of burned stones in the center. The floor was four feet below the surface.

The cemetery, as finally outlined, was nearly circular in contour, and was near the center of this division of the village. It had at first been established upon a fairly flat bench of land, the burials being at about the level of the original surface. As time passed, the surface accumulations and the many interments had increased the height of the bench, until it was nearly level with the debris heaps. The burials were found in consecutive layers, from the sixteen-inch level to as deep as seven feet. The skeletons at the lower levels showed, by their advanced state of disintegration, that they had preceded those of the upper levels by several centuries.

Great numbers of grave markers were present here; these displayed a variety of form and material that was not encountered elsewhere. By far the greater number were thin, irregularly outlined flagstones, of an average length of about twenty inches and a width of about thirteen inches. These stones were of such frequency that in places they fairly paved the depths.

PLATE 41



The Sheer Bank Facing the Creek Displays a Fourteen-Foot  
Sectional View of the Great Refuse Heap at Prisoners Harbor,  
Santa Cruz Island. The watch tower in the right middle  
distance occupies an ancient lookout station



Series of Spangles Cut from Mother-of-Pearl. Canaliño



Interior Valley, Santa Cruz Island. The two swells of land in the foreground were each occupied by late villages of the Islanders



The North Shore of Cochie Prietos Bay, Santa Cruz Island. The former settlement of the Indian reached from the foreground to beyond our tent in the middle distance

Next in point of numbers, and of greater interest, were more or less elliptically outlined slabs of about the same superficial area but thicker. Upon one or both of the flat surfaces had been wrought an elliptical groove, about three inches in width, which enclosed a raised section, or "island." This island, in several instances, was marked by an irregular cluster of deep pits or scars. If these objects were intended as utensils, it is difficult to realize just how they served their owners. If they were mills, they differed much from those employed elsewhere among the Canaliño. I found only one example of this form of artifact on the mainland, at Burton Mound, in 1923. This could easily have been introduced from the islands. It is now in the Museum of the American Indian, in New York City.

Among the grave markers were several sections of vertebræ of the sperm whale. These great bones had been modified in form, in nearly every case, by having the protuberances ground away; in one instance, the object had taken on somewhat the shape of a great hour glass. Over one skeleton, probably some one of note, three of these objects had been placed, one above the other, in the form of a column.

Other parts of the whale skeleton were used as markers, but much less frequently. Two of these, the scapulæ of rather small whales, are worthy of special note. Upon the lower surfaces, as they lay horizontally over the grave, were many countersunk "cup pits," each about three-quarters of an inch in diameter, in which were inlays of shaped and pierced bits of mother-of-pearl, set in asphaltum. A few of the skeletons were accompanied by orbicular vessels of steatite.

This site outranked all others examined by us, in the number of vestiges of planking. Greatly decayed as they were, these fragments still retained enough of their original character to identify them as once having been parts of boats. These boats had not been placed in the cemetery entire. In two instances, there were found parts from the prow or stern, in another a section from the side, and in several others, only small portions. Apparently parts of the boat, or boats, that had been broken up, had been used much like other grave-marking slabs.

The skeletons found in this burial plot were invariably flexed, the majority of them face down and with the heads toward the north, although several varied in the last two re-

spects. There appeared to be no separate plots for the sexes. In the majority of instances, there were present large numbers of personal ornaments, many of which were highly embellished. A few weapons, displaying a high order of skill in their creation, accompanied prominent male skeletons. These were also frequently found with peculiar marine growths, like effigies, in their hands, as if these quaint forms had been regarded as talismans.

There were also found, in the older graves of this cemetery, several limb bones of deer and possibly of other ungulates. (See Appendix.) There were also many fox bones and the skeletons of two dogs of an unusual type; the latter apparently had been buried with the same reverence that was shown toward the human remains.

At this site were also found gruesome reminders of the tragedies that appear to have resulted on the arrival, among this people, of twin babies. Near the center of the cemetery, at a depth of four feet, was found the skeleton of a young woman, decked in a great wealth of beads and other ornaments. At either side of the head rested a small steatite "olla," face up, each sealed with a slab of whalebone. Within each were the vestiges of a new-born infant.

Several fish hooks found at this site present a different type from those taken elsewhere, having an outside barb present. Much better preserved skeletons were found in the upper levels than elsewhere; in a few instances, these were accompanied by articles of white manufacture, including glass beads and articles made of iron and copper. It is interesting to note that among the iron objects were a few fish hooks that conform to the native type, having an incurved point and a plain shank.

The cove that faces the above described site is known as Cochies Prietos (Black Pigs), perhaps from a bit of natural sculpturing near the entrance of the bay which suggests the figures of huge black pigs. Kroeber gives the Indian name of this site as "Nanawani."

For some distance to the west of Cochies Prietos, the shores rise in high, precipitous cliffs, with no gorge of note to break their contour. This is a very rugged and forbidding region, difficult to survey adequately; my efforts to locate village sites in the locality met with disappointment.

Three miles and a half west of Cochies Prietos, another very similar cove indents the shore. This is known as "Willows," and is frequently resorted to by fishermen in time of storm. A deep, wooded gorge enters this small land-locked bay, in which a stream of fresh water flows during the winter months. Above the beach line, on the eastern side of the mouth of the creek, there stands a fisherman's cabin.

About the mouth of the canyon, there is a series of refuse heaps that, in general appearance and contour, closely resembles those of Cochies Prietos. West of the mouth of the creek, the refuse covers a considerable area of the floor of the canyon, lying slightly above high-tide level. Trenching showed that the deposit here does not exceed two feet in depth at any point; over a large part of the flat it is much less. A few random skeletons were found, but no trace of an established cemetery.

One-fourth of a mile north, on the floor of the canyon, there is a shallow deposit of kitchen refuse that covers only a small area. This was probably a temporary camp.

About one and one-half miles up the gorge, where it forks, the point of land between the two branches forms a rounded hill, the termination of a ridge which leads from the mountains. The crest of this point, about one hundred and twenty-five feet above the floor of the canyon, shows evidence of a former camp site, the shell refuse covering an area about one hundred and fifty feet in diameter. This includes a section that reaches down the eastern slope. I quote verbatim from Olson's field notes bearing on this site:—

"A narrow trench was dug across the crest of the hill, some thirty feet long, but was discontinued because of the extreme hardness of the deposit. Three test holes were sunk and showed a depth of about two and a half to three feet of shell. Especially noteworthy was the complete absence of bones. The shell consisted almost wholly of abalone, mussel and barnacle, the percentage of the latter being much higher than in the other mounds. . . . A curious feature was that on the south and east slopes of the hill, about one hundred feet lower than the shell deposit, were generous sprinklings of rock fragments and chips of rock, varying in size up to thirty pounds. All showed signs<sup>7</sup> of working. Several fragments of sandstone mortars were among them.

Flint cores and rejects made up a negligible part of the deposit. Evidently these objects had been thrown over the brow of the hill in discarding."

There can be little doubt that we have in this site the principal work-shop of the village near the beach.

As was the case at Cochies Prietos, the most important section of the settlement rested upon the gentle slope that rises to the east from the mouth of the creek. Extensive trenching operations were carried on here, one trench in particular being of prime interest. This bisected the refuse heap from near the beach line north, through what was probably the heaviest deposit of camp debris encountered by our party on Santa Cruz Island.

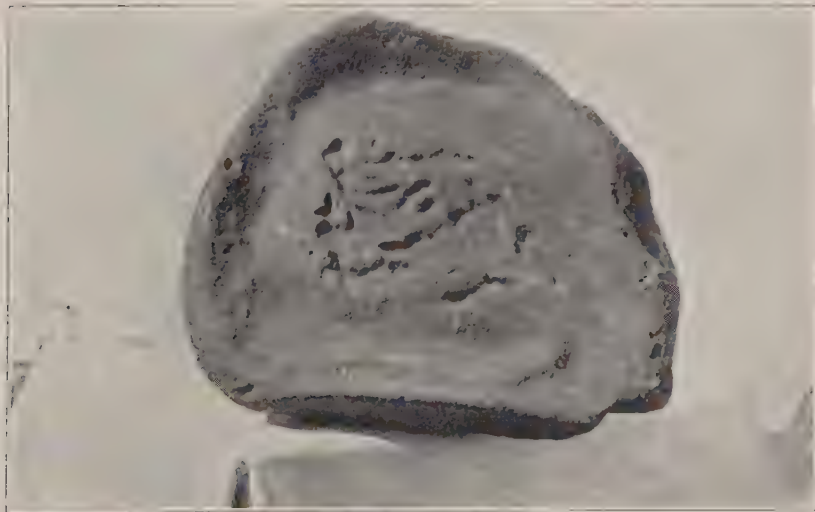
Throughout a fairly uniform depth of twelve feet, there was no break in the immense deposit of food refuse and other camp debris. There could be no doubt as to the much greater age of the lower deposits, as contrasted with those near the surface; the state of disintegration and compactness were alone sufficient to distinguish them. No difference could be recognized in the artifacts found at the various levels. Basket-making appears to have been a prominent feature of the village life throughout its existence. At all levels we came upon the asphaltum-coated pebbles and the bone bodkins that were employed in this work, and though no baskets were found, their imprinted asphalt linings were of frequent occurrence. Red paint was frequently encountered in small lumps, and a few scattered personal ornaments were brought to light, the latter conforming very closely, in type, to those found in other parts of the island.

There were also present a few fragments of wood that were probably portions of boats, although they were so far advanced in disintegration as to make their identification uncertain. The presence of several asphalt "plugs," or "nails," did, however, prove that there had been boats here. Mammal bones were present in considerable numbers; among them we again noted a few fragments of the ungulates, probably those of deer. A large part of this great deposit rested upon the white sand of a former beach.

Near the present beach line, we found the ruin of a circular sweat-house, the floor of which was slightly above high-tide level. About twenty feet to the northeast of the sweat-house,



Medium Sized Steatite Ollas from Cochie Prietos, Santa Cruz Island. Each when found contained vestiges of a newly born child. Diameter of vessels, nine and one-quarter inches



Conjectural Form from Santa Cruz Island. Wide, shallow, elliptical groove encircles raised, scarified center. Length of stone, sixteen inches



Varying Forms of Stone Rings ("Fossil Doughnuts"), Channel Islands. Diameter of middle specimen, lower row, four inches



Remarkably Fine Steatite Olla from Cochie Prietos, Santa Cruz Island. Fifteen inches in diameter

a very interesting example of a hut site was found. This was approximately circular in outline, the greatest interior diameter being sixteen feet and eight inches. The floor consisted of a platform of the finer material of the refuse heap, covered by a layer of sand, all packed very hard. This floor was somewhat concave, the outer rim being a little less than three feet below the present surface, while nearer the center it reached a depth of about three and one-half feet. Around the circumference of the floor, there were, still in place, a few upright stumps of whale ribs, and where these were missing, we found, at quite regular intervals, small orifices leading down through the hard floor. These could well have been the seats of wooden posts that had once stood there. As if to verify this conjecture, bits of decayed wooden poles and fragments of whale ribs were found lying criss-cross in the debris above the floor. Wisps of sea grass still adhered to these. One would suppose this to be a most fragile material, but it is in reality more enduring than wood or whalebone.

Slightly to one side of the center of the circle was a well-preserved fireplace faced with stone. Scattered at random over the hard floor were several objects that had figured in the domestic life within the hut. These included a shallow mortar, four fragments of other mortars, a pestle, two flint drills, several hammers, a cake of asphaltum, asphaltum-covered basket stones, bits of asphalt basket-lining showing the imprint of the weave, a flint knife and numerous flint flakes. Slightly above the floor-level were the above mentioned fragments of wooden poles and whale ribs, tufts of sea grass and several flat stones.

One can easily reconstruct the hut that once stood there. It was hemispherical in form and almost nineteen feet in exterior diameter, and had been built upon the crest of a refuse heap that was six feet in depth. The side walls had been supported by sturdy wooden posts, alternating with whale ribs. Over these had been lashed other poles and ribs, to give supports for the roof. The covering had been a heavy thatch of dried sea grass, tied to smaller poles which had been fastened across the heavy supports. Over the roof had been laid several flat stones, doubtless to keep the light sea grass from blowing away. Around the structure had collected the village refuse, until the floor was a yard lower than the surrounding surface.

At some later stage, the hut fell in, burying the floor and

its accumulation of household paraphernalia. Refuse continued to accumulate over it, until its location was marked only by a small depression. It is probable that the hut had ceased to serve as a domicile before the arrival of the white man, for we found no articles of this intrusive culture on the floor of the hut, although they were present in some parts of the upper strata of the heap.

A short distance to the southeast of this hut site were found the only traces of a cemetery that we discovered at this location, a cluster of four much disintegrated skeletons. All were flexed and face down. No artifacts accompanied them.

One item will prove that the natives of this village had knowledge of the white men, before the site was abandoned. In the heart of the refuse heap, at a depth of four feet, was an iron-bound keg, with massive oak staves. Above this container was an undisturbed stratum of camp refuse. It had plainly been in place for centuries. For a time, visions of buried treasure ran high, but when the keg was found to contain only the decaying bones of a hog, which showed the marks of a saw, the find was at once recognized as having been once a barrel of pork.

A mile and a quarter west of "Willows," a deep gorge, known as "Alamos," carries a never-failing stream of fresh water through the cliffs. The mouth of this gorge is marked by a small beach, but owing to boisterous breakers and dangerous rip tides, it is impractical to attempt landings here. A climb over the abrupt ridge that borders the ravine showed us that a comparatively unimportant village once occupied the side slope, back a short distance from the beach.

One and three-fourths miles west of "Alamos," opposite the cluster of sea-girt rocks known as "Gull Island," there is a prominent point of low land that shelters a rather indifferent anchorage for small boats. This harbor is known as "Laguna." The above mentioned point and a narrow ribbon of land, which caps the low cliffs for a distance of over one-half of a mile to the east, display the characteristic refuse of prehistoric settlements. Owing to the exposed situation, there has been a great deal of erosion here; many sections of the former site have been swept to the bed rock and only the heavier parts of the refuse remain. In three places on this wind-swept site were

skeletons which had been laid bare. These probably indicate that cemeteries were present at each of these places. Several fine artifacts were gleaned from the surface.

Two miles to the northwest of "Laguna," another headland faces sea-encircled rocks, which enclose a bight known as "Johnson's." A fisherman's cabin, which stands back only a short distance from the point, is in the midst of a series of debris heaps of considerable depth.

One-fourth of a mile east of the site, near the mouth of a small ravine that enters the sea at that place, is another accumulation of camp refuse. Each of these sites appears to have been raided by relic hunters. As points from which to collect large supplies of sea food, these locations were probably unsurpassed. The absence of fresh water, for miles around, was probably largely responsible for the restricted size of the heaps.

One mile northwest of the promontory at "Johnson's," a canyon containing a stream enters the sea. Here are two well defined and apparently important village sites. One of these in particular I judge to be well worth developing. I could find no evidence of excavating ever having been carried on here. The roadstead which faces the mouth of the canyon, known as Posa Anchorage, is partly sheltered by a point of land and by rocks to the north.

Three miles intervene between Posa and the next canyon to the northwest, known as "Willows of the West." Fresh water can be secured in this canyon. Forest growth is very sparse and the landing facilities leave much to be desired. In fact, the rather inconspicuous village site which I found here, appeared hardly to warrant the hazards and privations that would have to be endured to develop it.

Near the center of the western end of Santa Cruz Island, a rather large bay indents the shore. This bay is situated at the place where the ocean current, which enters between Santa Cruz and Santa Rosa Islands, comes in contact with the land and is deflected, creating dangerous swirls and rip tides. It is probable that this action, carried on through ages, has been largely instrumental in sculpturing out this deep curve in the coast line, known as "Christies." The lack of an established current through this bay has retarded the removal of the detritus from the shore, and as a consequence this body of water is

quite shallow and thickly set with rocks. Landings are made with difficulty, not only on account of the dangerous eddies and rips, but also because of a triple line of breakers.

Another feature of this locality is the almost perpetual fog that shrouds it. When the warm, moisture-laden winds, that sweep in from the Pacific, come in contact with the cool western slopes of the island, they are converted into thick clouds, which are seldom dissipated. During the fourteen days that we were encamped at this place, we had bright sun on only two occasions. During the several weeks that followed, from our sun-bathed camps at other places, we could still see the bank of fog that blanketed Christies. These natural handicaps have kept this part of the coast unfrequented, and the prehistoric remains have been left comparatively undisturbed.

Cerbada Creek has its outlet here and furnishes an abundance of slightly brackish water. High on the southern bank of the creek, near its mouth, is a rather wide expanse of wind-eroded kitchen refuse. From its surface may be gathered many interesting artifacts, particularly those of flint. The rarity of objects formed of shell or bone indicates, I believe, that they have been unable to withstand the exposure here and have to a large extent disintegrated. Several fragments of well-formed stone bowls are in evidence on the wasted surface.

About one-fourth of a mile to the south of this exposure, on the bank of a small, abrupt-sided ravine, is another rather unimportant deposit of camp refuse.

On the northern side of Cerbada Creek, the valley expands into a rather level tract of land, about one-half of a square mile in area. Over this, at rather regular intervals, are scattered eight sites of former settlements. Each of these is marked by a pronounced heap of camp refuse, the two near the mouth of the creek apparently being of greater importance than any of the others. To these two sites we devoted the principal part of our time while in this locality.

The first is a rather pronounced hillock rising from the north bank of the creek, back some three hundred yards from the beach line. This small hill is elliptical in outline, the longest diameter extending southeast and northwest. A trench driven diagonally through this served to develop several of its most interesting features. Hut sites of a previously described type

were encountered at various levels, the best preserved being about two feet below the present surface. On the southern slope of the mound, a densely occupied cemetery produced a great amount of fine skeletal material, as well as interesting artifacts in abundance. Among the latter, probably the most outstanding were the large numbers of bone fish hooks of remarkably uniform type. One skeleton lay with thirty-eight bone and shell fish hooks at its side. This individual, by the way, had been murdered, as the jagged point of a spear or dagger was found firmly imbedded in the front of the skull. Among the numerous skeletons examined here were specimens of every age and class, with apparently no attempt at segregation. The depths of the graves varied from one to four and one-half feet. Below these graves extended unbroken strata of refuse, devoid of human remains. It was very evident that this burial plot had been established at a period long post-dating the first settlement of the hillock. All of the material from this plot was well, or fairly well, preserved.

A great variety of small artifacts were present, not differing essentially from those found in other parts of the island. Shallow mortars were of common occurrence, indicating that acorns formed a considerable portion of the diet of this settlement. There were also a few of the flagstones with wide, elliptical grooves upon one surface, identical with those previously described as occurring at Cochies Prietos. Vestiges of wooden planking came to light at this site more often than at any other place that we examined, and while it is by no means certain that all of this material had once been parts of boats, we did find enough authentic boat material to prove that this was once an important maritime settlement.

The initial transverse trench also showed that, in the early period of the settlement, a cemetery had been established upon the crest of the hillock, almost in the exact center of the present refuse heap. This ancient burial plot eventually became buried beneath accumulated debris from the surrounding residential part of the village, and was abandoned for a long time, the upper two and one-half feet of soil at this place showing undisturbed stratification. The skeletons in this older part of the cemetery were all in an advanced state of disintegration, and the artifacts that were made of perishable materials also showed the effect of

a long lapse of time. The burials in the older plot had not all been flexed. Several were found prone, with the face up, but in other cases they were face down. The depths of these graves varied from four and a half to seven feet below the present surface. In the cemetery of later date, on the southern slope, all the skeletons were, I believe, found flexed.

The position of the skeletons varied greatly in the two cemeteries, the orientation in particular being very diverse. We noticed a difference in the artifacts taken from the two plots, although the artistic skill displayed was equal and the materials employed were the same. The difference between the two groups of objects were, I believe, the result of individual whim, a change in style rather than a racial or cultural difference.

In both cemeteries we found the remains of dogs, which had evidently received the same reverential treatment after death as had their masters. The presence of these remains in the older cemetery goes far to prove that the dog was present from the time of the advent of the first Islanders.

A few hundred yards to the north of the last described refuse heap is another very similar hillock, also covered with camp-site debris. Like the last described mound, it has a flat expanse of debris-strewn ground that connects it with the crest of the low sea cliff.

A transverse trench was thrown across this mound, disclosing a small cemetery somewhat to the north of the center. The material from this closely approximated that of the more recent cemetery of the southern mound. A house floor was also disclosed that very closely resembled those already described.

A series of trenches in the flat deposit of debris near the brink of the cliff showed that the last settlement of this locality had probably been located there. A cemetery in this plot contained many skeletons accompanied by many beautiful objects of Indian creation. There were also several objects which had been manufactured by white men, indicating plainly that this group had come in contact with Europeans.

One item that differentiated this site from all others examined by us was the presence of large, unshaped logs among the human wreckage.

The presence of six other highly developed community sites nearby, to the north and east of those just mentioned, was in-

licated by mounds of camp debris. These ten clustering village sites are combined under the name of "Shawa" on Kroeber's map of the islands.

One and one-half miles northeast of the last described cluster of village sites, near the head of a rugged ravine, is a display of food refuse of no great depth. Many fragments, chips and cores of flint are scattered over a wide area in the vicinity. Apparently this was an important center for the manufacture of flint implements.

One mile and a half almost directly west of this flint workers' site and back from the ocean a distance of nearly a mile, is what appears to be a very important site, the refuse being apparently of considerable depth and covering a wide extent of ground. Hut circles are plainly evident, as well as the locations of dance floor and cemetery. I could find nothing that would indicate that this place had ever been disturbed.

The northwestern part of Santa Cruz Island is in the form of a narrow extension from the main body of land. This extension ends, at its southwestern extremity, in a jagged confusion of volcanic rock, known as Frazer Point. This promontory and the tide-bound rocks in the vicinity tend somewhat to break the severity of the swells that are concentrated within the intra-insular channel. To the east of the point and close inshore, for a distance of one mile and a half, there is a very comfortable anchorage for small boats, known as Forney's Cove.

The territory adjacent to the cove is entirely devoid of trees and shrubbery, and nearly so of water; the little water that is available is unfit to drink. We are not prepared to say how the Indians managed the water problem, but it is evident that they were established here in great numbers and for a long period. At quite regular intervals, over a considerable extent of the rather low, flat land of this part of the island, are eighteen prominent mounds of camp refuse, several of them of great depth. They display great quantities of sea shells and ashes, and not a few bones of fish and sea mammals. Several have been excavated upon a large scale, apparently by a well equipped expedition. The great craters that were left as reminders of these activities, display upon their sides numbers of bones of the whale, these probably once having served as grave markers. There are, however, several of the mounds that I believe to be practically

untouched. Besides the mounds, there are, in the vicinity, a few small rock shelters which display thick blankets of kitchen refuse upon their floors.

The entire group of village sites, which extend for nearly two miles along the shore of Forney's Cove, is indicated upon Kroeber's map of the island sites as "Ch'oloshush."

This completes a brief description of the sites of former villages and camps which I found upon the island of Santa Cruz. There are probably others which I missed, but I think it unlikely that any that may be added to the list in the future will be of great size or consequence.

During the month of June, or the time consumed in exploring the sites of "Willows" and "Christies," the Museum expedition had as associates in the work, Messrs. Olson and Hill, representatives of the Anthropological Department of the University of California. The above report on the two sites mentioned is based, in large measure, upon Mr. Olson's field notes.



The Excavations at "Willows," on Southern Shore of Santa Cruz Island



Great Eroded Site upon the Point of Land Which Protects Laguna Anchorage, Santa Cruz Island. Gull Island in the middle distance



Our Camp at Christie's, Western Santa Cruz Island

## CHAPTER VIII .

### VILLAGE SITES, SANTA ROSA ISLAND

AND

#### SUMMARY OF RESULTS OF EXPLORATION

THE distribution of the ancient village sites upon the island of Santa Rosa is very similar to that of Santa Cruz. Generally speaking, the settlements on the northern and eastern shores were more numerous and more important than those on the other shores. In comparing these sites with those of Santa Cruz, the difference in environment should always be kept in mind. We must recall the picture of Santa Cruz, with abrupt, high cliffs, backed by steep mountains, through which are cut deep gorges with steep sides. Santa Rosa, on the other hand, is encircled by rather low sea cliffs, scarcely more than high banks, the tops of which, for considerable distances back from the brink, are expanses of level land. Behind these plains rise moderately high, smoothly rounded hills, the altitude in no place greatly exceeding fifteen hundred feet. The ravines lack, in a large measure, the steep sides which characterize the gorges of Santa Cruz.

The difference in topography accounts, to some extent, for certain differences in the settlements of the two islands. On Santa Rosa, the village sites along the coast are almost without exception situated in ideal locations, judged by Caucasian standards. Nearly all are adjacent to abundant fresh water supply. Upon Santa Rosa, so far as my observations extended, there existed not one of the lofty "look-out stations" which are such prominent features of the Santa Cruz settlement sites. The notable scarcity of volcanic upthrusts in Santa Rosa served also, to a certain degree, to modify the customs of the early inhabitants. No rock-shelter domiciles, for instance, were found upon Santa Rosa Island.

Our survey of the ancient village sites of Santa Rosa began at its most western extremity, known as Sandy Point. This

promontory is being continually eaten away by the sea and wind, and for over a mile of its length displays only a barren waste of rocks and shifting sand. We do not know how long the point has been so exposed, nor how much of it was suitable for occupancy in the time of the Indians. Today, as we proceed eastward along the northern shore, we begin to find stable soil conditions about one mile from the point, and here we also come upon evidences of ancient camp debris. It may be that, at one time, this deposit extended much farther to the west.

From where we first come in contact with the evidence of former occupation, there extends a chain of settlement sites, broken only by short intervals, over the entire length of the northern shore of the island. This shore, some thirteen miles in extent, is broken at five places by the mouths of prominent canyons, known as Lober, Green, Soledad, Corral and Arlington. Around the mouths of these canyons and also encircling a small bay farther to the west, are pronounced accumulations of camp site debris extending over great areas. Connecting the larger sites, there is a chain of smaller ones, which cap the low cliffs that overhang mollusk-bearing rocks. A walk inland revealed the fact that several small camps had been established on the floors of the canyons, back from the shore line, for distances that range from one-fourth of a mile to one and one-half miles. These interior sites bear no evidence of having been large or important. It is probable that they were seasonal camps only.

Owing to the extremely dangerous anchorages and landing places afforded by the northern shore, this locality is seldom visited, except on horse back from the interior. As a consequence little mutilation by excavators has taken place in the sites in this locality. The elements have, in recent years, eroded small steep-sided barrancas in three of the larger sites, exposing many skeletons, which protrude from the banks where the barrancas cross former cemeteries. These skeletons were accompanied by many personal belongings, which appeared to differ in no essential feature from those examined upon Santa Cruz Island. Highly polished beads of bone and staurotide appeared to be most numerous, although wampum was also abundant. Efficient and well made weapons of flint were of common occurrence upon the surface.

Probably the most outstanding features of the superficial

appearance of these sites were the plainly defined hut sites, sunken circular depressions, surrounded by ridges of kitchen refuse. Viewed from higher ground, these locations give the effect of a mesh-like design.

By a conservative estimate, no less than eighteen village sites are traceable upon the northern coast. As before stated, these are principally concentrated into five major settlements. Names are given to three of these on Kroeber's map. At the mouth of Green Canyon is "Siliwihi," at the mouth of Soledad Canyon "Niakla," and at the mouth of Corral Canyon "Numkulkul."

The northern shore of the island ends, at the east, at Carrington Point, a locality of barren rocks and half-submerged reefs. To the southward from the point for a considerable distance, there extends a series of shell heaps that line the shore, close to the many mollusk-bearing rocks. The depth of material in these camp sites marks them as having been long in use. This locality was probably the most frequented place on the island for shell-fish gatherers. It was also a favorite place for taking seal, as the quantity of seal bones in the refuse heaps here testify.

A mile and three-quarters south of Carrington Point, one enters a locality that has been, for years, exposed to a blast of wind that sweeps through a pass from the northern coast. From a strip of land fully one-half mile in width the soil has, to a large extent, been stripped, leaving barren ground and deep gullies. Over the major portion of this waste one may find vestiges of a great camp site. This settlement had not only followed the brink of the sea cliff for many rods, but had also reached inland for about one-third of a mile. At three quite widely separated points in the former site were found vestiges of cemeteries, with portions of skeletons and accompanying artifacts still in place. This wide, windswept area has for years been a favorite locality for relic hunting by the ranch employees, and many fine artifacts have been found. Our party found several desirable articles of Indian manufacture at the place. These included a fine acorn-shaped, sandstone bowl with incurving rim, a type new to our collection.

Ranch House Creek enters the sea one mile south of the last mentioned village site. Between the two places, near the edge of the sea cliff and about eighty rods apart, are two small, apparently unimportant camp sites.

About the mouth of Ranch House Creek are the remains of a very important settlement. South of the mouth of the stream, a flat of low land carries a depth of from two to five feet of typical camp refuse, of which shell and ashes form the major portion, although the bones of fish and seal are quite noticeable. Near the center of this small flat, beneath a series of flag stones, were found several skeletons, each lying flexed and face down, and accompanied by the usual personal possessions. This small plot bore no evidence of reburials and there was nothing present that would indicate great age. I look upon it as a family burial plot, at a period near the close of Indian occupancy.

On the northern side of the mouth of the creek, the bluff is capped by immense heaps of camp refuse which cover an area of several acres. These heaps reach their greatest development near the coast line and gradually diminish in height towards the west, until they disappear about thirty rods back from the edge of the sea cliff. The highest part of the heap was marked by a deep circular depression, which bore indications of former excavations. Our first trench was driven through this depression and the encircling debris, confirming our first impression. The entire depth displayed fragments of human bones in great numbers, as well as discarded fragments of artifacts. There was practically nothing to be learned here, beyond the fact that this part of the site had once served as a cemetery and that it had been thoroughly explored many years ago.

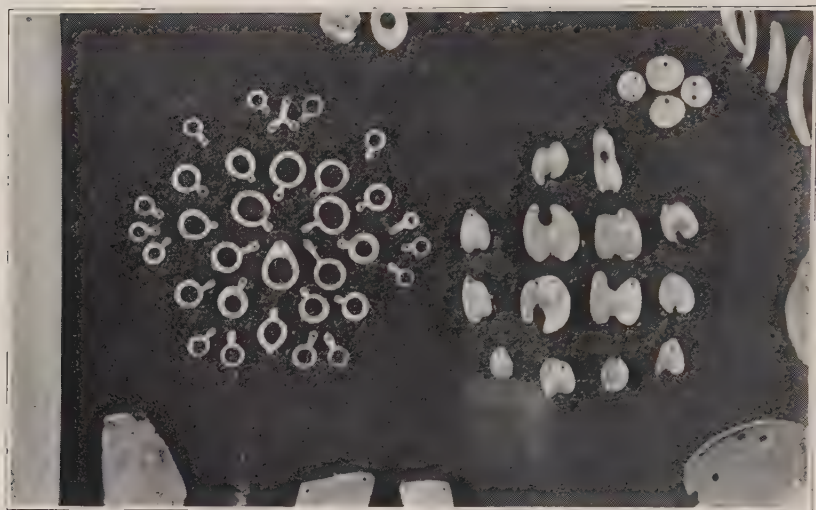
A series of trenches were later driven, from the edge of the cliff, directly towards the heart of the deepest part of the mound. These activities disclosed a most interesting story of the passage of time and the slow process of building the refuse heap. In fact, at no other place did we find the formation of the strata and their contents so clearly legible. A short distance from the brink of the perpendicular cliff, we found camp debris that reached a depth of over twelve feet. At its base, a twenty-four inch stratum of inky-black soil contained an almost unbelievable number of very old skeletons. Accompanying these was a wealth of personal belongings that served as a perfect index of the esthetic ideals of the time they represent. There was an entire absence of the crude and primitive touch that characterizes the artifacts of the Oak Grove People and those of the Hunting People of the adjacent mainland. Weapons were fairly



Bone Fish-Hooks, Coiled Form. Channel Islands



The Mouth of Ranch House Creek, Santa Rosa Island. The southern section of the site, in the foreground, is separated from the much higher northern section by a gorge



Spangles Cut from Mother-of-Pearl. Channel Islands



Small Basket in Situ Against the Face of the Former Owner.  
This basket was later found to be filled with personal  
belongings. From Santa Rosa Island

abundant and of the recognized Canaliño type, although there appeared to be a greater prevalence of obsidian than elsewhere. Among the weapons was one superb blade of flint that measured two hundred and twenty millimeters in length by seventy millimeters in breadth.

Above this extremely interesting cemetery were many well defined and unbroken strata of ordinary village refuse. These strata did not, however, lie in horizontal bands. Immediately above the layer of cemetery soil the strata were nearly horizontal, only a slight dip toward the ocean being discernible. The higher we climbed, the greater was the inclination, until, in the layers near the surface, they reached a pitch of nearly sixty degrees.

The history of this great refuse heap appears to be quite clear. In the beginning of the settlement, the cemetery had been established near the brink of the cliff, with the residential quarter closely adjacent. As time went on, the burial plot became crowded with skeletons. Meanwhile the refuse heaps of the adjoining village continued to increase in height, eventually encroaching upon the cemetery and covering it with a layer of debris. Just before this deposition, the place had apparently been abandoned as a place for burial, for we find no mingling of the coarse material of the refuse with the skeletons, as would have been the case had graves been sunk through this material. The refuse continued to collect over the plot, until at last the people forgot that it had ever been a cemetery, although for some reason it was never utilized for hut sites. The refuse heap to the west increased in height for many decades and the material from the crest continued to slide down the slope towards the sea, covering the ancient cemetery deeper and deeper, each successive accretion standing at a greater angle, as the mound increased in steepness.

The cemetery that functioned during the later years of the village was located some distance back from the edge of the cliff, in the upper strata of the highest part of the refuse heap. This was the place where excavations had been carried on by our predecessors, so that we could learn little of its original condition. Judging from the amount of human wreckage present in the tailings from the great crater and the prevalence of fragmentary artifacts which had been discarded, I should say that

the later cemetery equalled, if it did not exceed in importance the earlier one explored by us.

In each plot had been laid large numbers of baskets, both large and small, and each cemetery contained vestiges of boats, the decayed wood of which was still traceable in the more recent burial plot. In the older one we found faint traces of wood in which still remained the asphalt calking and "plugs" that had once connected the wooden sections of the craft.

In many of the graves in the older cemetery we found thousands of *Olivella* shells, the skeletons in many cases being literally buried in them; sometimes over a bushel of the little shells were present. The presence of great numbers of the same shell in the tailings from the cemetery of more recent date, showed that the same custom prevailed there.

A cemetery of considerable extent was also found occupying the western outskirts of the village site, many rods distant from the ones previously described. The skeletons were very close together, in a flexed posture, with the heads towards the south-east. So far as we were able to determine, all were those of females. The bones were in a remarkable state of preservation, from the oldest to the most recent, indicating that there had been some phase of the burial custom which had tended to preserve the remains. No *Olivella* shells were present. No limpet hair ornaments were at the heads. In fact, very few personal belongings could be found in the graves. At first, I thought that this was another example of the segregation of the sexes after death, but the cemetery was far removed from the regularly established burial plot, almost out of the village on the opposite side, and there were enough other differences to cast doubt upon this explanation. Finally the anthropometrical indices proved that this group of skeletons were those of females of an alien race; even in death, they had not been permitted to mingle with the islanders.

No trace of ceremonial structures was found at this location. Hut sites were encountered every few yards, the floors varying in depth below the surface from eighteen inches to ten feet. This site is named "Kichuwun" on Kroeber's map of this island. It was undoubtedly the most important settlement on the eastern side.

One and one-fourth miles south of the mouth of Ranch

House Creek, another canyon, in which there is a stream of fresh water, enters the sea. This is known as Water Canyon; near its mouth are to be found three village sites. One of these, rather small in area, is on the north side, one-half mile from the sea, where the hills begin to rise towards the interior. This site appears to have been in the nature of a seasonal camp only, the debris being sparsely distributed and only extending a few inches beneath the surface. Upon the northern bank, at the mouth of the creek, is a well developed site which, though small in area, had apparently been long occupied.

One-fourth of a mile to the southeast is a much larger site, occupying the brink of the sea cliff. This location is covered by a dense blanket of camp refuse, which in places reaches a depth of six feet. This contained a noticeably large content of ashes and burned shell, with only very thin intervening layers of unburned material. This deposit, apparently, represents the effects of an almost continuous fire of large proportions. Back from the cliff a distance of several rods, close to the southwestern edge of this great heap of burned refuse, was a cemetery. This was almost circular in contour, about thirty feet in diameter. A large pit within this area spoke plainly of the activities of excavators in times past.

Our trenches, bisecting the plot, disclosed that it had, at one time, been very thickly set with skeletons. The excavated area and the tailings contained a large percentage of fragments of human bones. Outside of the disturbed area, we encountered numerous skeletons in place. These were found lying very closely associated in certain places, with only a small amount of reburied material. The personal belongings in these graves closely approximated, in type, those found elsewhere upon the island. There were more elongate, tubular beads of staurolite and small leaf-shaped arrowheads here than elsewhere. This location is indicated upon Kroeber's map under the name of "K'shiuk'shiu."

About three-fourths of a mile to the east of the last described location and continuing eastward along the southern shore of Beecher Bay to Skunk Point, thence south along the eastern shore of the island to within three-fourths of a mile of East Point, is an unbroken chain of almost contiguous village sites which face the sea for a distance of over five miles. At several

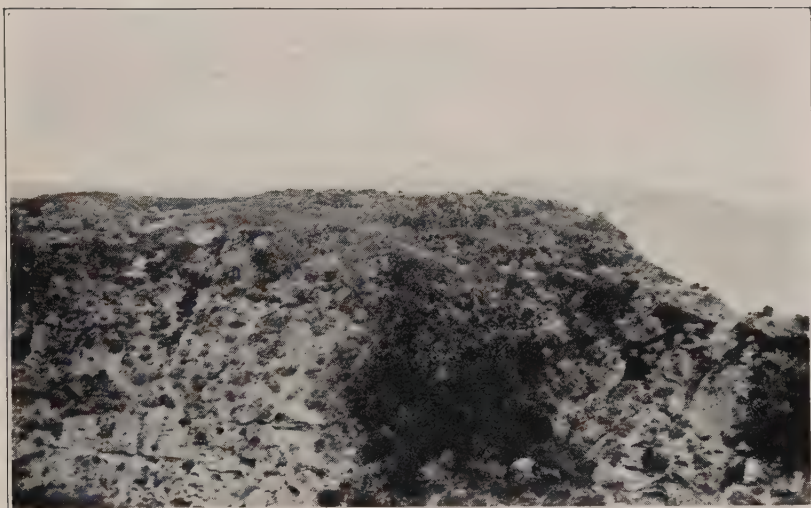
places these settlements are of considerable width; in one place, in particular, a site which faces the northern shore extends so far inland that it comes in contact with another equally extensive site which faces the eastern shore.

Throughout this entire belt of settlement sites, the elements have claimed almost as great a toll as on the island of San Miguel. Portions of the sites have been almost entirely swept away by the winds, leaving only the heavier materials. In other instances, we found vestiges of former villages at the base of sand dunes that have overwhelmed them. One village was practically intact; in other cases we found portions of village sites that have resisted the processes of erosion. Upon the southern shore of Beecher Bay was a series of such vestiges, in the form of mounds of camp refuse at least twelve feet in depth; these furnished a clew to the depth of the other sites before they were attacked by the winds.

The most southerly extension of this chain of villages is marked by a series of great elongate shell heaps, which face an extensive field of tide-washed mollusk-bearing rocks. Owing to the unstable nature of the material which forms these mounds, trenching was impracticable. Roughly speaking, they are composed largely of sand and sea shells with a modicum of bone refuse, about twelve feet in height.

Several former cemetery sites were located in the area just described. This was accomplished by following a line of fragmentary human bones found scattered over the surface, back to the place of their origin, where it was not uncommon to find parts of skeletons protruding from the banks of wind-sculptured barrancas. From about the neck of one such skeleton was taken a portion of a very remarkable necklace. This was composed of disks cut from mother-of-pearl, alternating with flint arrowheads, through each of which had been drilled a small perforation. I believe I am correct in stating that this is the first instance on record of the drilling of flint by the aborigines of California.

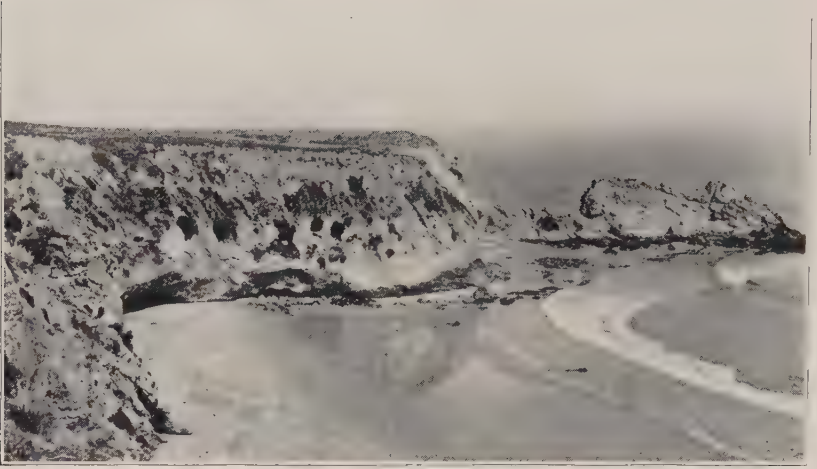
From East Point to South Point, the most southern extension of the island, a distance of nine miles, the southern shore presents a charming series of banks of sedimentary rock, hardly high enough to be called cliffs. These banks are broken, at quite regular intervals, by ravines that have their origin in the high-



Crest of Sea-Cliff in the Foreground Is the Site of an Indian  
Village Which Once Stood Beside the Mouth of Water  
Canyon, Eastern Santa Rosa Island



Cliff on Southern Shore of Beecher Bay, Santa Rosa Island.  
Its crest is capped by dense kitchen midden



Muscle Rock at the Mouth of a Deep Ravine, Southern Shore of Beecher Bay, Santa Rosa Island. Promontories on either side of ravine are capped by thick deposits of camp refuse



At the Right, in the Middle Distance, is Seen a Part of the Great Eroded Village Site Exposed above the Sand Flats of Skunk Point, Santa Rosa Island

lands of the interior. In these ravines there is usually a stream of water, but it is almost unfit to drink.

Beginning at the much eroded site, a short distance west of East Point, the next six miles of shore line present only three important sites. These are distributed at quite regular distances of two miles apart. In each case a watered ravine enters the sea nearby, the village having occupied the brink of the cliff at one side of the mouth, with mollusk-bearing rocks in the sea below.

South Point is marked by a high, rocky buttress, which extends from the range of hills in the interior and drops abruptly into the sea. This acts as a shelter for a small cove at its eastern base, known as Johnson's Lee. The cliffs above the cove are much more pronounced than are those further to the east. At the northern reach of Johnson's Lee, a deep narrow gorge, carrying a small stream of bitter, noxious water, breaks through the cliffs. Between the southern rim of the gorge and the brink of the sea cliff, there is a fairly extensive mesa. Over the greater part of this flat is spread a blanket of camp refuse, in some parts reaching to a depth of four feet, in others thinning out to a mere film.

In one place, near the southwestern limits of this site, we found abundant evidence that a cemetery had been ravaged by excavators many years before. Further to the north, near the hills that border the flat, another cemetery was located. Many flat stone grave markers covered the skeletons there, which, in every particular, closely resembled those described from other parts of the island.

Near the center of the site a bit of whalebone projecting from the debris aroused our curiosity. Here we unearthed, eventually, one of the best preserved hut ruins found upon the island. Exceptional conditions had preserved nearly all the material which had entered into the structure. The base of the hut was circular, the circle being about eighteen feet in diameter. The floor was situated eighteen inches below the present surface, and consisted of very compact sand. This hard floor was littered with the fallen walls and roof of the structure. From the remains thus preserved, it was easy to read many of the structural details. Seven upright posts of split iron-wood and four whale ribs had formed the circle. To these had been lashed a dome-

shaped framework of poles and whale ribs, to support the roof covering. Smaller poles had encircled the upright posts at frequent intervals. The final covering was a mass of sea grass tied on as a thatch. A mat of this thatch covered the fallen framework and in some places was still attached to it by sea-grass rope. Several large, flat stones had been placed upon the roof, probably to hold the thatch in place. Four whale scapulæ had also been placed against the wall around the outside of the hut, probably with the idea of aiding to keep the grass in place.

The circumstances surrounding this ruin, coupled with the fact of its splendid state of preservation, lead me to believe that this hut stood intact when the Indians saw the site for the last time. In the course of the hundred years which have elapsed since then, it has fallen in and been partly covered by the action of natural forces. Otherwise its story has been perfectly preserved for us.

Three-quarters of a mile northeast of the last described site, on a similar tract of flat land, once stood an Indian village of almost equal importance. The outlines of several former hut sites are to be seen here, and great numbers of flat grave markers, which have been thrown out by excavators. The site of these early excavations is marked by a large depression in the otherwise comparatively level site.

I found no other burial plot at this place, nor could I find the site of the "temescal," or dance floor. Our trenching, in the vicinity of the looted cemetery, disclosed the presence of numbers of human bones, and masses of *Olivella* shells which had probably once enclosed them. There were also present a few of the more common artifacts, mortars and pestles, which had been discarded by our predecessors. Upon Kroeber's map of the islands, the name "Nila'lhuyu" is given to one or the other of the last described sites.

About three and one-half miles almost directly west of the last mentioned village site, resting on a small bench of land which is no more than thirty feet above a series of large, tide-washed rocks, is a site which displays a deep deposit of camp refuse over a somewhat restricted area. This location, except at very rare intervals, is unapproachable by sea, and great effort is required to reach it from the interior.

Two miles northwest of this is a small promontory known

as Cluster Point, from the numerous sea-washed rocks which hem it in. Adjoining this point is a small but highly developed camp site which, from its inaccessibility, is practically safe from exploitation by relic hunters.

Two miles farther to the northwest, there projects a low point of land which receives the full force of the intra-insular channel swell. The sea in the vicinity is thickly set with reefs and half submerged rocks, culminating, a mile from shore, in the Bee Rocks. The low, exposed land which faces these rocks, shows the much eroded vestiges of a fairly extensive and probably important settlement, composed of several distinct small villages. This site is also extremely difficult of access. The location is designated on Kroeber's map as "Nawani."

I visited only one truly interior site, near the headwaters of Water Canyon, in the western interior. This place is absolutely unspoiled, there being in places choice artifacts projecting above the surface. There they will probably remain for some time, for the only means by which this site can at present be approached is on horseback, and all material must be brought in or out by pack-horse over faint mountain trails.

Even a concise description of each type of artifact found upon the islands would fill many pages. This consideration, coupled with the fact that, in nearly every class, there is so close a resemblance to the mainland types that the differences are difficult to explain, has induced me to rely upon illustrations of the material to make these differences clear.

I believe that I am correct in stating that the only unique artifacts which we found in sufficient numbers to establish them as a typical island product, were the flat stones mentioned elsewhere, which bear upon their face a broad, elliptical, shallow groove. The use to which these objects were put remains conjectural.

Probably the most interesting of all the products of Canaliño craftsmanship were the seaworthy boats, which we have frequently mentioned. These were built in such a way as to fit them best for the requirements placed upon them, and at the same time to offer the fewest difficulties to the artisans in obtaining material from which they were built.

Large and staunch boats were an absolute necessity, but no large trees, from which dugouts might be cut, were available. It was necessary to piece available material together. By adopting a patchwork type of construction, the islanders were able to use and did use many small pieces. From the numerous fragments of such vessels which we secured from the cemeteries of the islands, it was possible for us to make out the main features of this unique style of boat building.

The largest piece of wood in the craft was the bottom board, a slab about one and one-half inches in thickness. This was from twelve to fourteen feet in length, and from eight to ten inches in breadth. Curving upward, at an angle of about thirty degrees from each end of this plank, were the bow and stern posts, apparently indistinguishable one from the other. These end posts were wrapped securely to the lower side of the bottom board by a heavy line made of plant fiber, this line being run through holes drilled closely together in the pieces to be fastened.

Curving upward at a steeper angle than the end posts, and in a position at right angles to them, were sturdy ribs over two inches in diameter. These were fastened to the top of the bottom board. Otherwise the attachment was the same as that of the end posts. The number of ribs present in each boat was not determined, as only one fragment with a rib present was found by our party.

The sides of the boat were built of a large number of pieces of planking, cut to a fair degree of exactness, considering the crudity of the tools by which they were fashioned. Each piece was between three-fourths and seven-eighths of an inch in thickness, from three to four inches in breadth, and, in length, varied from one and one-half to three feet. These elements were united by means of lashings, which followed a line of holes drilled near the edge of each piece, from two to three inches apart. These planks were united to the end posts and ribs by lashings, through holes drilled in planks and posts. It will be noted that a great number of holes were present in the boat at this stage, the openings being only partly filled by the cords which passed through them. The next step was to apply large quantities of hard asphaltum. The method of application is somewhat in doubt. The charred condition of the inside of the boats may

indicate that live coals were thrown in with the lump asphaltum. The resultant fire would convert the asphaltum to the consistency of molasses, at which stage it would enter every crevice and orifice, as we find it in the fragments.

It is conceivable that persistent use of the calking-stone mentioned elsewhere would have brought about the same result. It is certain that, after the boat had cooled, it was pliable and impervious to water, and very light as compared with a modern surfboat.

No boat, built by this people, is in existence today, and our fragments fall short of giving a perfect picture. We should like to know whether the end posts extended above the level of the gunwale, as they do in the boats of the Solomon Islands, which are, as far as we know, nearest in type to the craft under discussion. It would also be interesting to learn the style of finish for the gunwales. It is inconceivable that the thin planking of the sides was left unprotected at the upper edge.

The inner sides of the boats were apparently left unadorned. The outside was completely covered by ornate geometric and other symbolic designs in contrasting pigments of black, white, red and yellow. These colors were mixed with some medium which preserved them through a period of exposure. A flotilla of these boats must have made a striking picture.

#### SUMMARY OF RESULTS OF ISLAND EXPLORATION

The material results from the activities that have been outlined in the foregoing pages were very satisfactory. Numerous skeletal remains were taken and preserved for future reference and laboratory study. This material is especially rich in well-preserved crania.

Thousands of objects, which had been intimately associated with the life of the islanders, were collected, and have formed a basis for studies of the cultural attainment of this people as compared with that of the adjacent mainland. During this comparative study, I have constantly endeavored to obtain light upon the problems which had excited our chief interest, when the exploration was planned.

Basing my deductions upon the prevalence and size of the residential sites, and the depth and extent of the refuse heaps, combined with the evidence offered by the congested cemeteries,

I would give the population of San Miguel at the time of its greatest prosperity as not far from two thousand. Santa Rosa had a population of six thousand, and Santa Cruz, ten thousand. These figures are, of course, only approximate, but would give a conservative estimate of the total population of the group of islands as not far from eighteen thousand.

The people, as a rule, lived and slept in the open during the greater part of the year. During periods of inclement weather, they were crowded into rather inadequate thatched huts or beneath overhanging rock shelters. Whatever comfort they had during stormy periods came largely from the great fires which appear to have been maintained almost continuously throughout parts of the year. Beneath the rock shelters it is not uncommon to find as much as five feet of highly compressed, almost pure ash.

Heavy blankets of tightly woven sea grass served, in a measure, to break the rigors of the stormy periods during the life of the individual, and also as winding sheets in their last rest. It is also probable, if we can take the word of early writers, that the skins of animals were sometimes used as garments.

Aside from the regularly established and long maintained village sites and rock shelters, there were other forms of camps used. Upon each of the islands, particularly upon Santa Cruz, are small sites which bear evidence of having been occupied briefly each year, throughout a long period. Some incentive had caused this people to gather at such places regularly. Perhaps these occasions were in the nature of religious observance.

One form of camp site, peculiar to the island of Santa Cruz, is the type which I have named "lookout stations." These are chiefly remarkable from the fact of the uniformity of details present in all. All are situated close to the northern shore of the island. Each has an unobstructed view of wide reaches of the channel and the abutting mainland. Each caps the crest of a lofty eminence, not less than six hundred feet above sea level. Each is circular in outline, small in extent, and presents a deep deposit of almost pure ash near the center, this ash deposit thinning towards the edges. No cemetery is present in any of them. No fresh water is near any of them. Bearing this uniformity of details in mind, it appears almost certain that

these lofty sites could have but one logical use, namely as look-out and signal stations. Assuming that the islanders had no cause to fear enemies, as the only other people in possession of boats capable of conveying an adequate armed force across the channel were their kinsmen, the mainland Canaliño,\* I believe that these watches and fires were maintained as an aid to canoemen in crossing the channel. It is well known that these waters are much quieter during the night than during the day; hence the night was doubtless selected by the natives as a preferable time to make the voyage. During such undertakings, a beacon burning above the shore mists would be a great aid to the mariners.

The refuse heaps show that the greater part of the food supply was shellfish, of a great variety of species. These people were, however, especially fond of abalones and mussels. These appear to have been present in never failing abundance. They are still to be found on the islands, clinging to the rocks which are submerged at high tide, but no longer in quantities sufficient to build up refuse heaps which would compare with those accumulated in former times.

Great skill was required in maintaining a sufficient daily supply of shellfish, and considerable risk was encountered. At many places it was necessary to scale almost perpendicular cliffs of great height, with a heavy burden, supported by a head strap, on the back. In even the more accessible places, the mollusk-bearing rocks are assailed by fierce breakers, which are a constant menace to life and limb of those who venture among them. We found, in at least one instance, that an Indian woman had been battered to an almost unrecognizable condition, probably by being dashed upon the rocks.

Mingled with the shell refuse were found many bones of seal, porpoise and whale, and a few of land mammals such as deer and fox. The abundance of sea mammals, in the waters about the islands, accounts for the frequent appearance of their remains in the refuse heaps, but the methods by which they were obtained are unknown. Seal could have been clubbed as they slept upon the shores or in the tide-level caves. The almost invariably shattered condition of the skulls of this animal which

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\* (NOTE)—We must except from this statement the Shoshonean inhabitants of the southern group of Channel Islands.

were found in the refuse, and the numerous heavy stone-headed clubs present, indicate that this method was employed. In the case of the porpoise and its much larger relative, the killer-whale, we are confronted by an apparently unsolved problem. It is natural to think of the white man's chief implement in a similar chase, the harpoon, but we found no harpoons. The presence of the remains of the larger whales, including those of the sperm whale, can be accounted for more easily. A certain percentage of these great mammals are slain by killer-whales and swordfish, or are driven ashore by storms. The Canaliño undoubtedly made use of the carcasses which were cast upon his shores.

Fish bones are of rather frequent occurrence in the debris heaps. Fish were probably taken largely by hook and line. Throughout the islands, as was the case upon the mainland, two entirely distinct forms of implement were employed, the barb and the coiled hook. The universal presence of both forms seems to indicate that each was intended for the taking of a particular type of fish. The coiled hook variety is more numerous than the barb. In a few instances, during the course of the excavations, we came upon traces of open cord-work mesh, which may indicate the use of nets in fishing.

The presence of a few large mortars and pestles seems to show that, in common with their mainland brethren, the islanders made use of the acorn as food. The vast fields of *Opuntia* which are usually present in or near the village sites, leads me to believe that the pears of this cactus were in demand as food.

Our investigations disclosed no ruins which might definitely be classed as ceremonial structures or council enclosures. This negative evidence, coupled with the almost total absence of ritualistic paraphernalia, appears to indicate that the influence of shaman and chief was of minor significance in the lives of the islanders.

The dance platform was present in a few of the sites examined but appears not to have been held in the same high esteem as on the mainland. Ruined "temescals" were frequently found and were probably present in the majority of the villages. There can be little doubt that the village life of the islanders was much less highly organized than was that of the mainland Canaliño.



Our Landing Place at Johnson's, Santa Rosa Island. The Indian village site caps the crest of the cliff in the middle distance. Our boat in the harbor beyond



Initial Trenches at Johnson's, Santa Rosa Island



Fragment of Woven Sea Grass Blanket, Santa Rosa Island

Slight differences exist in the types of personal belongings found in the earliest graves as compared with those of more recent date, but they are not of a nature which can be ascribed to tribal or cultural variation. They appear to be more in the nature of slight changes in style. There is, from first to last, the same abundance of production and the same high degree of skill employed. The slight changes noted may be nothing more than the results which followed the development of new sources of supply of the raw materials required. In the early graves, for instance, we found an abundance of weapons made from obsidian. None made from this material were found in the graves of later date. These obsidian blades may have been introduced by the first settlers, and later the supply of native flint upon the islands may have supplied the wants of the inhabitants.

All the indications point to the fact that the first island settlers were in possession of large, seaworthy, wooden boats of the same type as those which elicited praise from the early Spanish explorers. It may be that, because they were the only possessors of such craft upon the coast of California, the Canaliño were able to people the islands, and to maintain themselves there without molestation.

Nothing was found that would establish a definite date for the first human settlement upon the islands. There was, however, enough evidence present, at several of the sites, to show conclusively that settlements had been maintained there continuously for many centuries. Cemeteries, which had been established early in the history of the villages, had become filled to the limit and then abandoned, to be afterwards covered to a depth of many feet by the slow encroaching debris from the adjoining refuse heap. In the upper strata of the heap were found other burial plots of later date, also crowded with human remains. These conditions and the disintegration of the bones and the artifacts formed of perishable materials, all point to a very early settlement of the islands by a Canaliño invasion. I should place the advent of the first settlers upon the islands at a time near the middle of the period during which the Hunting People occupied the adjacent mainland or, in other terms, approximately two hundred years before the Canaliño made his presence felt upon the mainland.

We found little to substantiate existing traditions bearing upon the presence on the islands of various extraneous peoples. There are, it is true, sundry items which might be construed as indicating that others beside the original horde had made landings here. To take as an instance, there are present in abundance, among the remains of the Canaliño, stone-headed clubs and bone "pan-pipes," the nearest approximations to which are found upon the islands of the South Seas. These may indicate that boat crews from Polynesia had at some time touched these islands, as they did many widely scattered points washed by the waters of the Pacific Ocean. Even if this much is admitted, there appears to have been no results from this contact beyond the introduction of a few artifacts.

The great canoes themselves have sometimes been brought forward as proof of Polynesian influence, for we find in the South Seas the nearest approach to the boat of the Canaliño. But in this instance, if we grant a South Seas influence, it must apply to a time antedating the period of which we are making a study, for the Canaliño was in possession of a fleet of this type of craft at the time of his arrival in the channel.

The clearest evidence we have of the presence of extraneous people here is that offered by the isolated cemetery upon the outskirts of the ancient village of "Kichuwun," upon the island of Santa Rosa. Here were clustered a group of skeletons which had once belonged to females, alien to the island, as proved by anthropometrical indices. (See chapter relating to such measurements.) In this instance, the only one of the kind found by our party, the conditions surrounding the graves, and the remains which they held, suggested more closely the interment of captives than those of invaders.

The evidence of the arrival of the white man in the later years of Indian occupancy is very pronounced in the upper stratum of the refuse heaps. From a time soon after the advent of the first glass beads, there is a rapid decline in native crafts, and the upper film of refuse tells the story of a race which has sunk far down the scale in degradation.

That the islanders made successful long voyages is certain. The presence of steatite ollas speaks of round trips of one hundred and fifty miles to Santa Catalina Island. The presence, in considerable numbers, of bones of the deer in the island refuse

heaps, tells of regular voyages to the mainland. The great similarity existing in the culture of the various islands of the group gives evidence of frequent inter-island communication.

The final chapter in the life of this race appears to have been marked by an effort to isolate themselves in the interior of the island. We found small, inconspicuous camp sites which belonged to a period long post-dating the first arrival of the whites, occupying the deeper gorges of Santa Cruz Island, several miles from the sea. In these sites were found the remains of shellfish, which had been brought from the coast at great effort. Scattered through the food refuse were found bits of cloth, rusty iron fragments, glass beads, brass buttons and fragments of wine bottles.

Whence did this people migrate? This question, probably the most important one in connection with the study of the islanders, is also the most difficult to answer. That they were directly derived from Central Asian stock is strongly indicated by anatomical characteristics. It is equally clear that their culture had become firmly established before their advent in this region, for we find no tendency to change any detail during the centuries through which we have traced them.

They belonged to the great Hokan linguistic group of the Amerinds, but in all probability had been long separated from other divisions of people of kindred tongue.

The presence, at the time of their first arrival in the channel, of very serviceable seaworthy craft of a unique and standard type, stamps them as having been a maritime people for some time previous to their arrival in this region. In many ways, their culture much more closely resembled that of the Aleuts than that of their nearest neighbors. This, coupled with the fact that through the refuse heaps of islands farther north, beginning with the Prince of Wales Island and reaching in a chain southward through Queen Charlotte Islands and Vancouver and the small islands in the vicinity of the strait of Juan de Fuca, there are evidences of a very similar culture, leads me to believe that we have, in the Canaliño, representatives of a race which had, for many generations, clung to the coastal islands, in the long migration from northeastern Asia.

## CHAPTER IX

### THE OAK GROVE PEOPLE

AT least one item of paramount interest stands out, as a result of our studies of the prehistoric remains of the territory under discussion, namely that people culturally and perhaps sub-racially distinct from each other, had at different periods been the sole occupants of the region. The material remains almost automatically resolve themselves into those of three sharply defined groups. These groups, when subjected to critical examination, in the light of the conditions that surround each, show a difference in the periods of their occupation, in the localities selected for home sites, in the communal life of the settlement, including its ceremonial functions and observances, and in attainment in the crafts. We have, moreover, a series of anthropometrical indices that point towards a distinctly different tribal root-stock for each of the groups, although all fall easily within the great Mongolian type.

It is with the vestiges of the earliest people in this sequence, preserved for us through a long period of time, that we first concern ourselves in an effort to visualize the intimate life and customs of that remote age. Nothing from written history, and little if anything from tradition or legend, can be drawn upon in the reconstruction of this long-forgotten past. To be sure, the few living representatives of the Canaliño speak in awed tones of the "Mol Mol 'ique," the "Ancient, Ancient Ones," a "people that lived in the land long before we came," but that appears to be the extent of their knowledge. Even this reference should be accepted with due caution, for it may refer to the second culture people whom the Canaliño found on the lowlands. In fact, the Canaliño could hardly have had more than an intimation that a still older people had once occupied the crests of the hills that overlooked his villages.

With this very apparent lack of first-hand information about these earliest settlers of our land, our field of study at once becomes restricted to an investigation of the remains that are still



Pavement of Beach Stones Covering a Grave in the "Fig Tree Mound," "Mishopshnow." Similar to many found there



Undisturbed Stones Marking Five Graves of Refugio No. 3



A Series of Metates Removed from the Excavations in the  
Cemetery of Refugio No. 3



Much Disintegrated "Metate" and "Manos," Oak Grove People

left to us, aided by an imagination that will serve to clothe these relics with some degree of life.

No name at first presented itself by which we might designate this ancient people. We have at various stages of the investigation used the terms, "First Culture People," "The Ancient Ones," "The Oak Grove Dwellers," and lastly and perhaps most appropriately, "The Oak Grove People."

The last two names call for an explanation. They are based upon the evident fondness of this group for the shadows of an oak forest as a location for their villages. Many of these sites are still overhung by ancient trees. Others show scattered remnants of a once great forest, and in still other instances, clear proof of a former forest lies buried beneath the accumulated refuse of later ages, in the camp debris of the "Ancient Ones." The selection of a site may at first appear of little importance, but when we discover that the villages of the two later people are invariably found in the open, we begin to realize that this choice is something more than a mere coincidence.

Another unique feature of their village sites is that they were invariably on the crest of a high, rounded hill, adjacent to mountains and usually at some distance from the sea. Wherever the mountains approach the sea, there, of course, the village is also adjacent to the sea, but in no case is it ever found upon low ground.

The selection of these early village sites, so widely at variance with those chosen by the later peoples, I believe may be easily accounted for when we take into consideration the climatic conditions that then prevailed, evidently widely different from those of the present. The tremendous effects of erosion exhibited by the sides of the mountains facing the sea, the gullied and water-worn condition of the village sites themselves, where the rents in their surface have time and again been refilled with camp debris, and the massive sheets of boulders and clay that blanket large portions of the lower reaches of the watershed, are all eloquent of a period of tempestuous storms and of a volume of rainfall unknown in our now temperate climate.

A slight readjustment of the ocean currents that wash our shores and a consequent shifting of the zones of humidity, might easily subject the Santa Barbara valley to as great a precipitation of moisture as occurs now in the vicinity of Puget Sound

or on the Isthmus of Panama. Or the retreating glacier might have been near enough at the time of the Oak Grove People to cause a much heavier rainfall than we have today. Irrespective of causes, we are positive that these different climatic conditions existed long after the close of the Pleistocene age. We are equally sure that an established people resided here during at least a part of the period of great rainfall, for we not only find their repeatedly gullied and as often repaired village sites, but at rare intervals we have found the artifacts of this pioneer race *in situ*, beneath the great blankets of detritus characteristic of the period under discussion. Notably in the great highway cut near Tecolote Canyon, forty feet below the present surface and beneath thousands of tons of water-worn boulders and clay, I found a fragment of a well worn metate and two typical manos.

In spite of the inconvenience entailed by these torrential storms, the existence of this people was probably far from being an unhappy one. They had learned in the rough school of experience to avoid the lowland with its frequent inundations. They had sought the shelter of the rugged oak forests on the hill tops, where the lashing fury of the downpours was in a measure tempered. Forays by alien hordes were unknown, partly because a great mountain and sea barrier isolated them geographically from the rest of the world, but more particularly because there was probably at that time no other race in the vicinity and possibly none within the present boundaries of the United States. Thus there was entirely absent from their lives that haunting dread of invasion, with its attendant horrors, that has been the heritage of nearly all peoples since time immemorial.

We find this people grouped in small villages, each composed of from five to twenty semi-subterranean dirt-banked huts. These still retained the architectural features inherited from a line of ancestry that reached directly back to age-long dwellers on the rigorous steppes of Siberia. In the construction of these huts, a circular pit, of from thirteen to fifteen feet in diameter, with perpendicular walls, was put down to a depth of approximately thirty inches. Over this excavation was probably erected some form of fairly substantial protection against which was banked the loose earth from the pit. We find these ruins even now in a fair state of preservation although the perishable parts



“Metate” and “Manos” from Ancient Site of the Oak Grove People



"Stele" and Massive Circular Mortars from Refugio No. 4



Flint Knives of the "Oak Grove People"

have entirely vanished. There is always a hard, firmly packed floor of ash and clay with a fireplace occupying the center.

We rarely find metates or manos in these hut sites, but cooking stones are always present. A circle of boulders and a quantity of loam cover the floor to a depth of over one foot. We may only conjecture the reason for the presence of the boulders; they may originally have rested about the brink of the pit; or possibly they acted as weights upon the roof.

In the course of time the huts collapsed, the wooden supports and wattles vanished, and there remained only the dirt and boulders, as we find them today. We can also trace a slightly raised ring of loam encircling the pit a short distance back from the brink. This I take to be the portion of the dirt roof that has not fallen into the excavation.

This type of dwelling is not uncommon wherever early man occurred in America. I have explored almost identical remains along the crest of the bluffs that overlook the Missouri river in southeastern Nebraska. Very similar remains are said to have been left by the early "Basket Makers" of the Southwest. In fact, I have little doubt that for a long time after their first advent, the huts constructed by these Americans of direct Asiatic descent varied but little from the type which may still be found in eastern Siberia, where it doubtless has been used for ages past.

The deposits of refuse that are inseparably linked with all locations where early man has lived have, in the case of the people whom we are considering, undergone to a large extent a great metamorphosis. It is often of considerable depth, but the upper stratum which we pierce in our investigations, while giving the impression of being of artificial origin, yet lacks definite, easily recognized constituents. Search as we may, little in the way of food refuse remains in a condition that may be identified. At the bottom of the heap, however, we are apt to find a remarkable condition. For untold ages the elements have been active in the disintegration of all soluble materials that had been cast on the heap. In the form of solutions, these minerals had sought lower levels until they came in contact with the hard, original surface. Since this was almost impervious, the mineral salts had formed a mass at that level, adhering closely to everything with which they came in contact and in the course of time, solidifying to a

hard, calcareous mass, in which all objects that still retain their individuality are imbedded.

On close scrutiny we find, besides the artifacts and fragments of the larger human bones, small flecks of charcoal and other vestiges of the former refuse heap that have not undergone a complete transformation. This formation is one of the most interesting features of the former camp sites of the Oak Grove People; it is found in neither of the other cultural levels but is invariably present in this one, when the subsoil is firm. Wherever the refuse is underlain with sand, no such formation appears, the solutions evidently having been absorbed by the loose base. The time required for the complete dissolution of the materials of the heap and their reformation into the ledge-like stratum, must have been very great.

Of the customs of this remote era we catch fleeting glimpses only. Among these are the conventions that governed burials. We find that in every case the body had been laid at full length, with the arms straight along the sides and with the face either down or up. The favorite depth of a grave appears to have been about thirty inches.

Very few personal belongings have been found with the skeletons, and these are, with two exceptions, confined to very crude flint weapons and tools. The two exceptions noted are much disintegrated bone bodkins, tentatively designated as hair pins.

Red ochre was used in abundance in the graves of this period, the soil being fairly stained with it, but the exact method in which it was employed is a mystery. I found no molded cakes or even granules. I believe that it was used as a thick paint over the body before it was deposited in the grave. Such use is known to have been made of this substance in the graves of palæolithic man in Europe. Or this stain may have resulted from a superabundant use of this pigment during the life of the individual.

The upper levels of the graves are of particular interest. Immediately over the skeleton, at the level which marked the surface at the time of the burial, is usually found an aggregation of stones that once served as a grave marker. These markers were, doubtless, at one time upon the surface, but, owing to the settling of the graves and the subsequent accumulation of debris above them, they are now at varying depths below the present

surface. These markers vary considerably in the nature of the objects used, and also in their arrangement. A favorite arrangement is a circular platform about two feet in diameter, composed of small, flat beach stones. In some instances, two or three much larger, elliptically outlined, flat stones have been laid horizontally with edges touching. Rarely we find cairns of rounded boulders piled in a pyramidal heap.

Probably the most striking of these efforts to embellish the graves is in the frequently recurring superimposed platforms that contain objects of household use. Sometimes these alone served the purpose, or they were associated with unworked boulders. The artifacts thus used were chiefly the massive, uncouth metates, or mealing stones, interspersed with numerous manos, or hand stones. The metates were almost invariably found with the face or cavity down. These two classes of utensils were found in great abundance in these locations in about the ratio of two manos to one metate. All of these markers were more or less disintegrated and in nearly every case had a dense coating of the calcareous metamorphosed refuse previously described.

The artifacts that marked the manifestly older and deeper graves were found to be so frail and decomposed that it was frequently impossible to salvage them. As the evidences of a later period in the life of this race appeared, we noted an improvement in the condition of the objects recovered, but even in the later stages their condition was in no way comparable with those of the people that followed them.

Upon rare occasions we found evidences in these graves of an advance above the sheer savagery that we have learned to associate with this primitive people. In several of the graves we found that at the chin of the skeleton there rested a large abalone shell, face up. I believe that we here have evidence of food placed ready for the departed one, evidence in other words of this people's belief in immortality.

The finding of such uniform surface-marking of the graves and a tendency toward massiveness in the markers, both of these characteristics being absent in the cemeteries of the later peoples, has led me to study carefully this phase of their culture. I believe that the following theory may be offered. Serious doubts can no longer be entertained as to the Asiatic origin

of the early American races, nor is it unreasonable to look upon the great interior wastes of Asia as their former habitat. Throughout this region today, several of the nationalities follow the custom of loading the graves with boulders as a protective measure against desecration by wild beasts. This precaution has, in the course of ages, become almost an inherent trait.

Granting that our Oak Grove People sprang from similar surroundings and had, throughout a long period, migrated through lands infested by predatory animals, this protective measure would naturally have been employed until it became, in the course of time, a purely ritualistic form. When the migrants arrived in our valley, practically devoid of grave-robbing beasts, the necessity for thus cumbering the tombs with a protective cairn ceased to exist, but the custom continued as a rite, becoming much modified in detail as time progressed.

From our present knowledge of this people, it would appear that forms and ceremonies among them were of the simplest type, if they existed at all. Our most diligent search failed to trace any form of structure except hut sites within the confines of their villages. This does not necessarily signify that the expression of religious feeling was entirely lacking in their culture, but does, I believe, indicate that it had not developed beyond the simple rites which may still be observed among some existing savages, rites that demanded no council hall, sacred compound or temescal.

It is also significant that, of the many graves examined, none were enough diversified to indicate the social distinctions that had been the lot of the living. If such dignitaries as chieftains and shamans existed at that time, the fact lacks confirmation in the remains that are left to us.

No trace of pottery in any form was found in any of the Oak Grove sites examined, though they were thoroughly searched for this particular craft-expression. I feel absolutely certain that this group of people had made their exit from the Old World previous to the development of earthenware, and that through lack of proper incentives, they had not developed the art later. It is even conceivable that, in their undeveloped state, there had not yet developed a demand for vessels. Aside from the few afore-mentioned mortuary abalone shells, no evidence of hollow containers has been found.

There is, however, one class of utensil of which there is no dearth. This is the heavy, flat, more or less elliptically outlined nether millstone, for convenience given the Mexican name of "metate," as indicating a utensil used for the reduction of coarser materials to a finer condition for food by a rubbing process, as opposed to the round mortar and pestle which necessitate a plunging process. These exceedingly primitive and crudely executed mills greatly outnumber all other existing products of this people's handicraft. These nether stones have in their upper surface an elliptically bounded cavity that apparently varied in depth in direct ratio to the amount of use to which the stone had been subjected, for there is no evidence that any agency was employed in forming the cavity except the slow abrasion of the manos employed in rubbing the acorns to meal.

An extensive series of these metates was secured and carefully studied in connection with the environment in which they were found. All appear to indicate a certain line of procedure on the part of their creators, a procedure that appears to have varied but little through the lives of many generations. Yet, as we compare the most ancient specimens that we could preserve with those of the later period, we note that certain subtle changes have become fixed, and during the late years of this people's residence here a still more marked change took place. The story of the utensils appears briefly to be as follows. The necessity for converting the acorn harvest to food impelled the first settlers in this region to select the flat stones nearest to hand as resistant nether surfaces. Doubtless two smaller, water-worn stones lay near at hand, approximately of the same size and more or less of a shape which could be readily grasped by the hand.

With one of these in each hand the "Ancient One" proceeded to the reduction of the potential food supply. This first process would remove the hulls. After a period of leaching to remove the bitter tannin from the kernels, they were again subjected to the improvised milling, in this case to emerge in the form of a well ground paste, ready for use as cakes or gruel. This succession of alternating processes eventually caused a depression in the nether stone, the direct result of the abrasion by the hand stones, and at the same time the latter would become flattened on one or more sides. From the very nature of the process

employed, the ever-deepening cavity of the nether stone invariably took on an elliptical or oval contour and eventually reached the limits of the thickness of the slab; the resultant hole in the bottom caused it then to be discarded.

This, in general, was the line of procedure throughout many ages. There were, to be sure, minor modifications introduced from time to time, modifications due in some cases, undoubtedly, to the exigencies of the moment and in others to arbitrary demands for greater convenience, but from whatever source these variations sprang, a few finally became fixed as a part of the cultural expression of the period. The earliest people, for instance, used for their nether stones forms with but three essential requirements. First, they had to be flat, so that there should be no rocking as the milling proceeded; secondly, they must be of a size that would permit their being carried from place to place, and thirdly, they must be of durable, gritty material that would best lend itself to the demands of the occasion.

There seemed to be no other requirements for a long period, and consequently only natural forms of stones, of varying rough outlines, unmodified by the hand of man except for the characteristic elliptical cavity, are found among the earliest remains. Later, we begin to note crude shaping of the outline into roughly elliptical forms; this tendency finally developed into the satisfying finish of the later period of this culture.

Another improvement which progressed hand in hand with the last mentioned, was the gradual shaping of one end of the metate to fit between the knees. The later forms were admirably adapted for making the process of grinding more convenient for the miller, and also served to steady the utensil.

With the slow evolution of the nether stone into the serviceable metate of the later years, the hand stone or "mano" acquired a certain individuality that it lacked in the beginning. Stones of resisting qualities far beyond the ordinary were always chosen, several, notably those of red granite, evidently having been brought from a distance. These manos, almost invariably found in pairs, each of nearly the exact weight of its mate, have in nearly every case been carefully shaped to an ovoidal form. They appear to have been cherished possessions of the owner, for in many cases we find them ground down on each side by long usage, until they are so thin that the fingers

of the miller must have dragged upon the metate. Even then they were not discarded, for we find many instances where they have been used edgewise until they took on the form of an elongate, squared billet.

The metate was at the same time undergoing a modification that may safely be ascribed, at least in part, to the loving tenacity with which the miller retained her well-worn hand stones. We may readily imagine the time when, through long use, the cherished *mano* had reached such slender proportions that it could no longer be used without endangering the fingers of the miller. We may almost see her, as a last resort, take the faithful stone by the end and with downward jabs endeavor to complete the grist. Possibly to her amazement, she noted that the results were very satisfactory. This stamping process would produce a rounded cavity in the bottom of the metate and would lead to the development of the future mortar.

I may be accused of drawing upon my imagination for the above hypothetical genesis of a primitive discovery in the methods of milling. I have, however, every detail for the illustration of my story readily accessible for verification, except, unfortunately, the miller. There are an abundance of hand stones, in every state of wear, from the newly fashioned and still unused ovoids to the slender, squared, stone billets which bear indisputable evidence of having been used as pestles. Metates are to be seen that have been worn deep by the rubbing process and possibly discarded; these have, in their lowest depths, hemispherical cavities that could only be the result of using the end of a stone in a stamping motion, a characteristic that I have noted in no instance among the earlier relics of the people. In the entire field of archaeological activities, I recall no instance where the genesis of a decided step forward in human attainments stands revealed with such clarity as this evolution of the primitive metate of the early Oak Grove People into the incipient mortar and pestle which they used in their later days. Near the very close of this epoch, crude mortars and pestles that have been used from the first as such, are occasionally found, but this people continued to depend largely upon the metate to the very end of their existence. The metate then drops from use, never again to function in this region until re-introduced, in a different form, by the Mexicans of recent times.

In addition to the numerous examples of this class of artifact found in the cemeteries, it is not uncommon to find isolated specimens in unexpected localities. These I take to be relics of former activities in places removed from the home settlement, where temporary camps had been established and milling done.

I have described in detail the evolution of this indigenous utensil, the result of the primal needs of a savage race who had recently become established in permanent homes and required a diversity of food. I will speak briefly of its dimensions. All are cumbersome and heavy. Occasionally some of unusually large size are found, and we sometimes find rather small specimens, but the large majority conform very closely to one size. The dimensions are approximately as follows: eighteen inches in length, fourteen inches in breadth, five to six inches in height. The manos are rather more uniform in size, since they had to conform to the grasp of the miller's hand. An average size would be about five inches in length, three and one-half inches in breadth and two inches in thickness.

The cavity in the metate is very uniform in shape and size, being restricted to the sweep of the hand when the miller is in a stooping posture. This produced, in nearly every instance, either an elliptical or an oval depression, about thirteen inches long by nine inches wide, the depth depending upon the length of time the mill had been in use.

I would not, however, leave the reader with the impression that I consider the metate to be peculiar to this region and to the age of which I am speaking. This form of mill has been a favorite utensil among many peoples and in many localities. This is notably the case among the primitive Shoshones, the Pueblos of all degrees of culture and time, and the Mexicans, past and present; yet the utensils of these peoples appear to have little connection save the necessity that dictated their use. Each people have evolved a form and retained its unique features throughout a long period of time, so that there is little chance of mistaking a milling stone of one race for that of another.

Few other reminders of the domestic and communal activities of this people have been preserved for us. Large flint flakes that have been roughly retouched were present in some of the

graves. These were probably substitutes for knives, fleshers, scrapers and planes. These tools, doubtless, fulfilled every requirement of their owners but, as tools for other than the most savage mind and hand, they appear very inadequate.

Practically the same may be said of the few weapons that have come to light—rough points of flint that are, I believe, unmatched in the crudity of their finish. The smaller of these might have been used as arrowheads, but they are of such exaggerated assymetry and crudity of finish that it is hard to see how they could have been of service to an archer. The larger points might well have served as spear tips and thus have furnished fairly efficient weapons of defense, but these appear to have been very limited in number. In fact, so far as the remains show, this culture was deficient in missile weapons.

Mention has been made of the probable immunity from invasion enjoyed by the residents of this valley during the time of which we speak. It is also likely that, owing to the climatic handicaps of the time, the hunting of large game was of limited nature; this supposition is confirmed by the total absence of bones of the larger animals in the refuse heaps. Since the two chief incentives to the creation of efficient weapons were thus absent, the lack of these implements is largely accounted for.

Fish bones are of equal rarity. It is probable that this people lacked seaworthy vessels and skill in surf fishing. In the metamorphosed debris of the kitchen-middens, the most notable constituents are fragments of mollusks and echinoderm spines, these occurring plentifully. It is probable that these animals furnished about all the change from the staple diet of acorns, a never failing and abundant food supply. Insects, very possibly, were an article of food, but from their nature would leave no remains.

To the writer it appears beyond reasonable doubt that the first advent of the Oak Grove People in this locality coincided very closely with the first advent of man in America. There is also no doubt in his mind as to their long sojourn here. This opinion is based chiefly upon the occurrence of their artifacts at various levels, which are separated by great intervals of time, but it is corroborated by the depth, thickness and condition of the camp refuse which contains all that remains of this people. We have, also, the evidence of a gradual evolutionary change in

the household utensils; a development of this kind is generally the result either of a long lapse of time, or is due to the influence of an intrusive people, and we have been unable to trace any evidence of such an influence.

It is evident that a large part of the intimate life of this race of the remote past has been forever lost to us. It is possible, even probable, that they had attained to a considerable proficiency in the production of baskets. It is equally probable that they possessed efficient weapons of wood and bone, and that in common with most groups of primitive man, their bodies were freely ornamented with tattooing, paint, quills and feathers. But these conjectures, based upon our knowledge of other races, can never be verified. Inexorable time and the unrelenting elements have forever removed all corroborative evidence with the single exception of the reddish stains in the soil about their burials. It is certain, however, that they had no knowledge of pottery, and had not discovered the use of asphaltum, such an important adjunct to the life of the later cultures. There was little, if any, inclination to modify natural forms for art's sake, the few modifications that have been noted being in the line of pure utility.

In spite of our limited knowledge of their life, I am inclined to place this people in a more advanced position in the scale of human development than the restricted remains would indicate, for the great lapse of time and the very perishable nature of a large part of their belongings would bring about a condition from which we might assume too low an estimate of their attainments. They were, nevertheless, probably very primitive in their mode of life, resembling in this respect the historic Terra del Fuego or the Tasmanian.

At the close of the period under discussion, this race appears to have totally disappeared, without leaving any indication of the cause of their disappearance. If this were a unique instance of the disappearance of a people who left no trace of the cause or direction of their exodus, we might feel that we had overlooked some important detail during our investigation. Unfortunately, we find the path of archæological investigation strewn with the vestiges of lost peoples, of the Ohio Mound Builders, of the Cliff Dwellers of the Mesa Verde, of the mysterious sculptors of the colossi of Easter Island, of the Khmers

of Angkor, and others whose passing has to the present remained shrouded in mystery. To this category we must, for the present, consign our Oak Grove People, merely suggesting that their disappearance might be ascribed to any one of several contingencies; superstition, pestilence, invasion by a powerful foe, each have in times past served to depopulate a land.

Every village of the Oak Grove People appears to have been deserted at approximately the same time. The low, dirt walls of the huts fell in a short time after, preserving, to a certain extent, the size, contour and depth of the structure; in a few cases even the hard, earthen, ash-strewn floors of the huts have been found.

Rain and wind and other vicissitudes of nature gradually obliterated all traces of former occupancy and the forest reclaimed its own. Hundreds of years, at least, elapsed before the advent of other human beings, people that differed in very many important respects from those who had preceded them. In a few instances, these newcomers appear to have utilized the former sites of the Oak Grove People's villages for their settlements, but in such cases it seems to be a coincidence due to the presence, nearby, of a spring of fresh water which had appealed to them, even as it had, in earlier times, to the "Ancient Ones."

## CHAPTER X

### THE HUNTING PEOPLE

THE first people to establish themselves in this region had run their race and completely vanished from the scene at a time that probably antedated the Christian era by several centuries. As stated elsewhere, no clew as to the causes that led to this sudden and complete disappearance has as yet been found, but their disappearance may well have been the result of an invasion by a band of well-armed and capable warriors who, even in small numbers, could have readily swept through the valley almost unopposed by the unprepared and practically unarmed Oak Grove People. A brief period of pillage and murder would have sufficed to destroy every village completely, and if any of the inhabitants escaped, it was to flee the country.

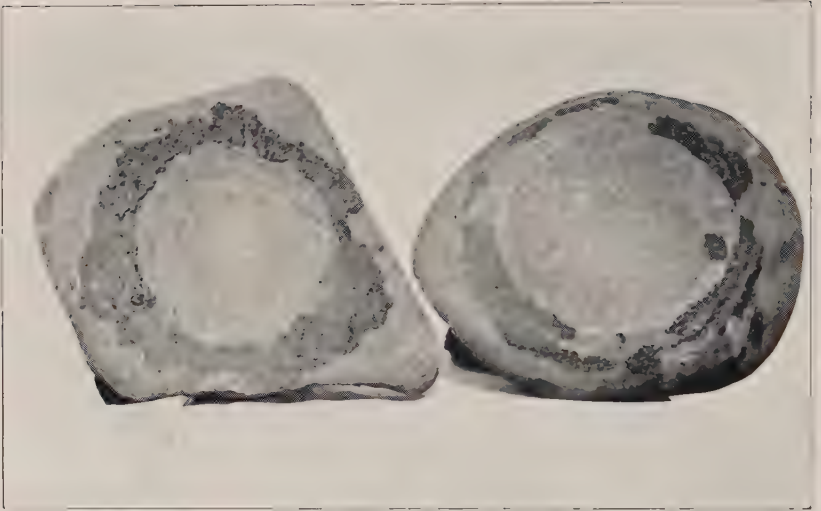
This mere conjecture as to the events of that dim past may well be wide of the mark, but of one thing we are certain, namely, that the next people that we find established in this region were of a character exactly suited to carry on such a campaign of extermination.

It is probable that during the period of climatic readjustment which corresponds, approximately, to the era that intervenes between the passing of the first people and the permanent establishment of the second, there had not been a total cessation of human activities here. There had probably been intermittent visitations of bands of hunters from other localities. It is possible that one or more of the waves of humanity that at irregular intervals crossed from Siberia to Alaska and began the age-old trek along the coast to the south, had passed through our territory without settling down.

It is even conceivable that the region was at no time entirely devoid of humanity, but was occupied by a limited population of savage nomads who drifted from one location to another, as fancy dictated. None of these more or less transient activities, however, could have left any legible or enduring record.



Upper Surface of the Great Cairn Found Above a Grave of the Hunting People in the  
Superimposed Cemeteries of Winchester No. 3



Basket Mortars of the Hunting People. Longest Diameter of elliptically outlined stone, thirteen and one-half inches



Sandstone Bowls of the Hunting People. Largest figure is eleven and one-half inches in diameter and eight and one-half inches high

The first evidence that we find of the permanent establishment of the people of the second culture here, appears to date from a time several centuries subsequent to the disappearance of the older race, at a period well within the Christian era. The terrific downpours of the preceding age had greatly abated, and the reduced drainage waters sought the sea by well-defined channels that eventually became the deep canyons of the present watershed.

Clustered upon the headlands near the mouths of the newly formed canyons or, in a few instances, upon hillocks that bordered the great esteros, we find evidences of occupancy, for long periods, by a people differing widely and in many respects from the previous inhabitants. From the very nature of the culture that they represent, that of a semi-nomadic race, we are destined to know less of this second people than of those who followed them, or even of the Oak Grove People who preceded them.

The skeletons of this Hunting People are in every way indicative of a stalwart, athletic people, with short heads, high brows and massive features. The most outstanding evidence of their characteristics is the great number of heavy, efficient, flint weapons that they possessed. These are all well-made and business-like, but lack the exquisite finish that is so notable a feature in the flint-craft of the later Canaliño.

The spear heads are almost invariably of the broad, "leaf-shape" type, without stem or notches, and, in length, run from six to nine and one-half inches, with a width of from one and a half to two and a half inches. In several instances the asphaltum-bound wrappings that had attached the head to the shaft still adhered to the head; from these we are able to determine that the shaft was very sturdy and had been firmly united with the point by means of a wrapping of asphaltum-soaked sinew. These weapons would serve admirably as hand tools of offense and defense, but were probably too massive and heavy for missiles. The length of the shafts could not be determined, as the wood has entirely disappeared. From the numbers present, we judge these spears to have been the favorite weapon of this race.

Flint and chalcedony knife blades are almost as numerous, and are nearly as large as the spear blades, measuring from four and a half to seven and a half inches in length, by from one and three-quarters to two and one-half inches in width.

These knife blades vary considerably in shape, being, I believe, largely the result in this particular of the original form of the flint flake plus the individual fancy of the artisan that produced them. The most common form appears to be the broad leaf-shape. Scimitar shapes are not unknown; in fact, it would puzzle a geometrician to define all the varied contours in one series. A few of these utensils are edged throughout their entire circumference, and were doubtless used as we find them. Others display the attachment that marks them as having been fastened to hafts; there are, in rare instances, bits of deer-horn handle still in place.

The arrowheads are, as a whole, heavy, broad, and wickedly barbed, only remotely resembling those of the later Canaliño. They ordinarily measure from two to two and a quarter inches in length, by about one and a half inches in width. The materials of which they are made vary greatly and include quartz, chert, chalcedony and obsidian. The presence of the latter substance offers a clew that is well worth following, as this material is not known to occur within several hundred miles of this locality. These well-designed points were firmly attached to the shafts by means of sinew and asphaltum cement. There can be no question as to their efficiency, and they remain mute but positive evidence that they had once served an active, truculent race of warriors and hunters.

If other evidence is needed, we have but to investigate the great masses of refuse that are still found in the vicinity of their former camp sites. In these heaps are to be seen, in almost unbelievable quantities, the bones of land mammals that have served as food. Among these remains are to be found those of the deer, elk, puma, black bear, grizzly bear, and smaller animals. There is also a fair proportion of seal bones and, at rare intervals, those of the sea elephant. A few fish remains are also present. Whale bone is noticeable by its total absence. Quantities of the larger sea shells give an indication of the varieties of shell fish that contributed to this people's diet. Of these, I believe that the *Tivela* easily takes precedence, although *Polinices* is a very close second. I have found no echinoderm remains and very few of those of *Mytilus* in the refuse left by this group. In fact, as compared with the people who came later, these people appear to have been exceedingly choice as to their

food, in this respect more closely approximating the modern Caucasian than did either of the other prehistoric peoples who at one time resided here.

Although the abundant evidences of great age that are such a prominent feature of the sites of the Oak Grove People are, in the case of the second people, largely absent, we do find that considerable time has elapsed since their first appearance. As compared with the remains of the third people, the Canaliño, all of the material is much advanced in disintegration and shows the effects of centuries of leaching. In some instances we find that a beginning has been made in the deposition of calcareous derivatives from the refuse above, although this in no case has amounted to more than a film.

There appears to be an almost total absence of the "greasy" soot that is so prominent in the sites of a later culture, so that the texture of the soil is much firmer and distinctly lighter in color. As a matter of fact, if we had no other way to determine the culture to which a certain site should be ascribed, it would be entirely possible to do so from the physical condition of the soil and its contents.

As compared with the numerous locations occupied by the people who had preceded them and by those who came later, the settlements of the Hunting People are few, but are usually of great extent. The great scope of territory covered by these sites, in some instances nearly a mile in length, has made the matter of their exploration difficult and in several ways unsatisfactory.

In each of the sites explored, there appears to be a very uniform distribution of the camp refuse, no trace having been found of any centralized kitchen-middens. The refuse never reached to the great depths that are sometimes found in the heaps left by the Canaliño; I would take thirty inches as a fair average. There are differences of content at varying levels and in different localities, but these differences gradually merge, without the abrupt breaks frequently seen in the deposits from other cultures.

I found no trace of the dwellings of this Hunting People, nor any evidence whereby I might definitely determine where they had once been, but taking into consideration the great extent of the former sites and the mass of accumulated debris

present therein, I feel certain that hundreds of shelters of some description must have been erected at each of these locations. The structures were undoubtedly quite transient in nature, conceivably only skins supported upon poles. Whatever form these habitations took, they certainly have left no enduring mark by which we may determine their size and shape, and the material of which they were constructed.

Practically the same statement may be made in regard to any communal structures that may have existed. We are, I believe, justified in supposing that a people endowed with such an abundance of initiative and energy as the contents of their refuse heaps seem to indicate, would, in common with all known people of kindred habits, have had an exalted veneration for the forces of nature with which they came in contact. Reverence, however, for these recognized attributes of the environment to which they owed their existence need not necessarily have been shown within the walls of a conventional enclosure. We should look, rather, for expressions of thankfulness and fealty similar to the ritualistic observances of known races of today of kindred cultural advancement and modes of life. If any group of the powerful hunting races of the Plains wished to propitiate the invisible forces that hedged them around, it was by a simple act of votive symbolism, performed in the open and at a seasonable time. The most complicated ceremonies were centered about flimsy compounds that at best served for only a few days, and were then either destroyed or fell into decay. Indeed, it would be a gifted ethnologist who could read from the camp site of the Cheyenne or the Sioux, five years after it was abandoned, a lucid story of its rites.

Of the sites that were examined, belonging to this particular group, only one showed anything that could by any flight of the imagination be construed as the ruins of a structure. In that portion of one of the largest village sites that has been designated as Campbell No. 1, I found the faint remains of a circle that lacked every characteristic by which its former use might be determined. It was about twenty-one feet in diameter, being much too large for a residence and apparently too small for any ceremonial structure except the sweat house, and the ruin showed none of the features that we have learned to associate with this form of enclosure.

In common with the other groups of people who have occupied our valley, the Hunting People interred their dead. Their cemeteries were located near the centers of the villages. They lacked somewhat the symmetrical elliptical outline that is so common a feature of the burial plots of the later Canaliño. There was not the same congestion of burials that is noted in the cemeteries of the Canaliño, and we noted no tendency to displace older burials to make room for those of more recent date. The bodies were placed in the grave, tied and wrapped in the so-called "embryonic posture," i.e., with arms and legs doubled against the chest and head bowed forward upon them. They lay face down, usually with the head pointing towards the west, and were accompanied by only a few of their personal belongings. Over a few of the graves were found extensive platforms, built of stones of varying sizes. In one instance, the structure was ten feet long by five feet wide and ranged in thickness from ten to fourteen inches. This mass of at least two cubic yards of material had entailed a great amount of labor, as the stones, which had been brought from the beach, weighed from a few ounces to over fifty pounds each. Built in with these undressed boulders were several household utensils of a type that easily marked them as belonging to the second cultural epoch.

In these regularly established cemeteries, we find the highest expression of the idealism of the Hunting People, and it is fairly constant throughout the tenure of their occupancy of the region. In times of dire stress, however, even the hard and fast customs governing the rites of burial were sometimes disregarded. We found villages, with well established cemeteries, where beneath large portions of the residential section were found numbers of scattered burials. The skeletons, in every case, showed evidence of having been hastily and unceremoniously buried. None were flexed; the heads pointed in every conceivable direction of the compass, and even towards the zenith and the nadir. The most exaggerated examples of distortion were also exhibited by these scattered skeletons. I supposed at first that here were evidences of the tragedies of war and of the burial of the slain where they fell. With this in mind, I minutely examined scores of skeletons without, however, discovering any evidence of wounds. I believe now that

a virulent epidemic had at one time swept away large numbers of villagers, who had died in fearful agony that left the bodies wrenched and distorted. The number of deaths and the weird distortion of the corpses made the usual methods of burial impossible, hence quick methods of disposal were adopted for sanitary reasons, each body probably having been interred hastily and in no formal position, very near the place where death had overtaken the individual.

In the matter of household utensils, there is an absolute departure from those of the preceding people. Most characteristic is the "basket mortar," a utensil that with this people makes its first appearance in this region. To facilitate the reduction of acorns into a condition available for food, a flat stone was utilized. Upon the upper surface of this was cut a circular groove that held exactly the lower rim of a bottomless, funnel-shaped basket. When the basket was placed in the groove, a ring of hot asphaltum, poured at the joint of juncture, fastened the two inseparably; this contrivance served admirably as a hopper to retain the grist as it was reduced by the plunging pestle.

The dimensions of these basket-hoppers are somewhat problematical, as none remain to us. We have, however, carefully studied the imprints that they have left, and can give their approximate dimensions and contour. They were about six inches in height, flaringly funnel-shaped, and sturdily built of wicker and grasses. The orifice in the bottom was from seven to eight inches in diameter, the edges being well bound. The latter detail is positively known from the well preserved imprints in the asphaltum rings that still adhere, unaffected by the elements, to the nether stones. Throughout the entire period of this people's sojourn here, these nether stones conform very closely to a set type. Either nearly circular, flat stones have been selected, or else others have been roughly chipped to that contour before the basket was attached. The stones invariably have a rounded or convex lower surface, apparently for the purpose of seating them in sand or other loose soil. They are of a size that would act as a substantial base for the basket but not massive enough to become a burden when their position was changed. They are usually about fourteen inches in diameter and three inches thick.



Arrowheads of the Hunting People



Spearheads of the Hunting People



Knives of the Hunting People

Of the scores of these objects found, not one has been worn through at the bottom, a condition that is frequently noted among the metates of the earlier people. Without data upon which positive conclusions may be based, I can only suggest possible reasons for this apparent lack of thrift in discarding a perfectly good mill-stone apparently long before it was worn out. It may have been that with this people the milling process called for a fairly flat grinding surface, a requirement that is reflected in modern methods. If this were the case, the deep concavity formed by long usage would not be a desirable feature, hence the stone would be discarded when it began to reach this state. Another suggestion also presents itself. The life of the basket-hopper, subjected as it was to constant strain and wear, would sooner or later come to an end and its replacement would involve certain problems. Would the miller, after weaving a new basket, slowly and laboriously cleanse her old mill-stone of its adhering load of acorn dough, remains of the former basket and the viscid ring of asphaltum, and then proceed to cement the new hopper in place? I believe that there is at least an even chance of her selecting a fresh stone for her new basket. The pestles fashioned by this people were quite efficient for the work in hand, but had none of the artistic perfection of those of the third culture period.

The mortar described above was apparently the only form of mill employed by the Hunting People. The basket mortar, in a modified form, is known to have occurred among several native Californian groups, but, so far as I have been able to learn, is not known in the above described, unvarying primitive form, outside of this restricted area. I have previously stated my belief that the metate mill of the Oak Grove People was indigenous to this region, being a perfectly natural result from the needs of the moment. Not so the basket mortar. It bears every imprint of being the result of careful forethought and probably also of a long period of evolutionary experimental stages, from which finally emerged the simple form which we find upon the first appearance of the Hunting People in our valley, and which endures without change to the end of their culture. Any occurrence of this or of similar forms of the basket-mortar, contemporaneously with or antedating their appearance in the Santa Barbara valley, we should look upon as

extremely important clews which might lead us to a solution of the mystery that now surrounds the origin of this second culture.

Many stone vessels were used by this people. These were small to medium sized bowls of sandstone, some hemispherical in form but the majority of an elongate contour, with thin walls and rounded rims. The great number of these bowls, coupled with the fact of their restricted size, leads me to consider them as individual food receptacles rather than cooking utensils.

Numbers of small, flat, elliptically outlined stones, notched on the two edges which mark the shortest diameter, are to be found among the remains of the people. For these, I can imagine only one use, that of a primitive form of cooking stone, the notches being formed to receive the withe that served to remove them from the fire. This theory is somewhat strengthened by the fact that in the majority of instances these stones bear unmistakable proof of having been highly heated.

No remains of vessels of sufficient capacity to act as cooking pots were found, even after thorough exploration. I am forced to the conclusion that some transient form of container was used, possibly the green hides of mammals, such as were very commonly used among the Plains Indians of a later date but of a similar culture. The heavy, conical-tipped war-club heads that are found in considerable abundance among the remains of the Hunting People also serve to call attention to their similarity in customs to the great buffalo-hunting people of the interior.

Personal adornments are found in the shape of massive beads of stone and shell, but not in abundance. Red ochre paint is, however, found upon every hand. Several of the skeletons were found to be fairly packed in this pigment, which was ordinarily treasured in large abalone shells; these receptacles, full to the brim of the red earth, are frequently found in the graves.

One other substance is well worthy of mention—asphaltum. This is encountered at almost every step of our investigation, except at the sites that have been occupied by the Oak Grove People exclusively. This early group appears never to have used it, chiefly, I believe, because the need for it with them had seldom arisen. From the first advent of the Hunting People upon the scene, bitumen appears to have been in continuous use. We find that not only do the basket-mortars de-

pend upon it as a structural necessity, but that many broken utensils were repaired by using it as a cement, that all weapons were attached to their hafts by it, and that cakes of the material were always kept at hand for immediate use.

The method of applying this mineral tar was simple. One end of a long stone was heated and held against a cake of the material, until it ran to the desired place, where it hardened quickly, adhering closely to every object with which it came in contact. In other words, the technique was very like that of a tinsmith when using his soldering iron. The stones used in applying the asphaltum are of very frequent occurrence and all conform quite closely to a certain standard, which apparently required that they should be convenient to the hand and that they have one small, rounded end for the distribution of the pitch. After a lapse of centuries, they are still easily identified by the black tip of adhering bitumen and the very evident fact that they have been exposed to heat. For want of better name, we have dubbed these implements "calking stones," because of one of their most common uses at a later period, namely the calking of seams of the seagoing canoes of the Canaliño.

Unfortunately, little more has been revealed to us regarding this interesting people, and that little is of such a fragmentary nature that it is hardly suitable as a record. There are, however, enough consecutive and authentic data to bring vividly before us a picture of this active horde of hunters, who entered this all-but-forgotten valley early in the Christian era and set up their already well-established form of cultural development.

Their wide-spread settlements on the open stretches of the lowlands displayed none of the marks of permanence that are found in the village sites of the other two people who have occupied the region; small, flimsy tepees of skin were presumably clustered here in great numbers. The sites also lacked the ceremonial compounds that marked every spot settled by the Canaliño. In fact, it may safely be said that in nearly all the essential features of savage or barbaric life, the Hunting People differed widely from the Oak Grove People and from the Canaliño.

Of their mode of life and the probable time of their appearance in this region, I believe there can be little doubt. Other chapters of their life story that would prove of enormous

interest, if they could be read, seem doomed to perpetual obscurity. Whence came this people? Were they recent arrivals from Asia at the time of their first advent in this region, or were they descendants of much earlier arrivals from the mother country? If the latter, where had they been living in the period that had produced such a distinctive turn to their culture? Are there existing today, in any part of the world, a closely related, kindred people? Was the Hunting People even remotely related to the Oak Grove People who had preceded them in this locality? Had they any connection with the race that later peopled the Channel Islands? Were they implicated in the disappearance of the first inhabitants of the valley?

The Hunting People, as a whole, was never driven from this locality, but, after holding it undisturbed for several centuries, a portion of them, at least, amalgamated with the teeming race of the third culture, who were in full possession of the entire region as early as the year 1000 A. D.

Several of the former great village sites of the second culture period appear, in the course of time, to have been totally abandoned, as they yield no evidence of ever having harbored other than this one people. It is perhaps significant that those sites on which were found the many scattered graves in the residential section, each of which contained a greatly distorted skeleton that had been laid away without accustomed rites, are the ones that were unoccupied by a later people. Is there not a strong probability that a deadly plague, spreading death and panic, had resulted in a complete exodus from the stricken localities? And might not traditions of the curse that had fallen upon a certain locality have prevented its resettlement at a later date?

In other sites, notably Las Llagas No. 1, there is traceable a superimposing of graduated shades of cultural advance from early Hunting People until nearly the close of the Canaliño period. Here are, apparently, the records of the period during which the remains of a once powerful race had been gradually merged into that of a much more numerous one,

## CHAPTER XI

### THE "CANALIÑO"

OUR synopsis of the records of the prehistory of this locality has now reached a place where certainty may to some extent supplant the uncertainties that have characterized our study of the more ancient peoples.

In the case of the earliest people the great gulf of time intervening between them and the present, together with the primitive character of the life they led and the transient nature of a large part of their remains, have made them difficult to understand. They come to us more as fossils from a forgotten age than as links in the story of modern man. In the case of the people of the second culture, there is a certain human appeal in the relics of these hardy, capable hunters that, to some degree, makes them more easily understood, and yet even here we are baffled by the exceedingly transient nature of the major part of their belongings, which, if preserved for us, would have shed a flood of light upon many aspects of their lives that are now forever lost. When we try to reconstruct the life of the third cultural group, we find that for the most part the difficulties have almost completely vanished and that the people and their ideals stand revealed with almost startling clearness.

By the time of the arrival of the Canaliño in our valley, the climate had assumed practically the same semi-arid phase with which we are familiar today; there was the same succession of days unvaried by climatic extremes, and the limited rainfall had formed narrow channels in the bottoms of the canyons to accommodate its greatly lessened drainage.

These drainage channels were no longer capable of maintaining an open outlet to the sea and each succeeding tide deposited its burden of sand across their throats, ultimately forming a series of dunes, through which the creek cut an open channel only in time of freshets. On the landward side of the dunes, the accumulated water, supplemented by occasional contributions of sea water, as high tides swept over the barrier, formed a brackish

marshy estero of greater or less extent, according to the width of the floor of the canyon. In the estero grew a rank jungle of tules and rushes, through which, at irregular intervals, meandered narrow stretches of sluggish water, the feeding grounds of numerous water fowl. It is not uncommon to find, upon the firmer portions of these marshes and along their borders, dense growths of willows.

The many esteros, each during the tenure of its existence marked by well defined boundaries, were and still are subject to modifications in form from various causes. Perhaps a heavy burden of detritus, carried from the sides of the mountains by a sudden downpour, lodged against the barrier dunes and deflected the current of the torrent, which then cut a new channel to one side leaving the former marsh piled high with boulders and clay. In time, this new-formed land became clothed with dense shrubbery, while nearby, the new channel, choked by the ceaseless tide, was being slowly transformed into a new estero. There were many variants to this cycle of events, each having a tendency to make the closely adjacent shores of the marshes a very insecure place for human habitations. Yet it is at these locations, in the majority of cases, that we find the chief evidences of the former activities of the people of the third culture.

Close to the borders of these present or past marshes, in some cases only a few feet above high tide, in others upon adjacent headlands, are found the sooty-black masses of soil that we have long since learned to recognize as the former camp sites of the Canaliño.

In several instances, it is very evident that two or more villages had occupied the shore of the same estero contemporaneously, separated by an interval of unoccupied territory, dependent for its width upon the size of the marsh and the extent of the abutting villages. This unoccupied intervening strip is usually marked distinctly by some physical feature, such as an arm of the estero itself, or a ravine, or a marked difference in the elevation.

Those of the villages that had occupied the lower levels had shared to some extent the vicissitudes that had overtaken the adjacent estero, for in several instances we found heavy sheets of detritus covering long-used settlement sites. Here the residents had doubtless been forced to flee and abandon

everything, after a cloud-burst in the mountains that overwhelmed the lower reaches of the valley. Such catastrophes seem to have in no way daunted the villagers, for, above each mark of inundation, we find the village re-established. In a few instances, we found no less than three such strata of clay and boulders with as many intervening layers of camp debris.

Other villages, situated upon slightly higher levels, appear to have been immune from catastrophes; here the residence was continuous. Still other settlements of this people were inland, at some distance from the seashore, skirting the inner borders of the larger lagoons. In a very few instances, we found Canaliño sites located at the sides of canyons, where they emerge from the foothills.

Besides these numerous residential sites that are fairly uniform as to the choice of location, we have found several temporary camp sites far back in the hills. These show by their stratification that they were occupied for short periods, through a long term of years. There can be little doubt that at intervals the Canaliño sent groups from the established settlements to the wilderness, in all probability to secure some form of staple food.

The evidence obtained by the excavation of the numerous sites of this era finally presents a very complete picture of the intimate life of the people who had occupied them. Little by little the items have been brought to light, pieced together and annotated. It is the story of the simple lives of a people who, isolated from the cultural influence of other races, had risen, in art at least, far above the peoples who had preceded them. If they had been left undisturbed for a sufficient additional time, it is conceivable that they would have finally reached a fair degree of culture.

This people from their first advent, erected their numerous huts ("jacales," as they were termed in the early chronicles) upon the silted-in floors of the mouths of the canyons or upon the rocky surface of the adjacent headlands. The latter locations appear, in the majority of cases, to have been at points where the Hunting People had established themselves in years past, and where, continuing to occupy the same site, they had gradually merged into the third culture. In no instance did we find the two cultures superimposed at the tide-level locations.

Even the older hut circles were usually easily traced by the arrangement of the debris. In the center was the fireplace, with its dense bed of ashes, in which were found burned objects in great variety, including bones, shells, broken vessels, etc. A circle of bones, shells and other coarse debris, with a little ash, surrounded the fireplace to a diameter of approximately eight feet. Outside of this was a circle, varying from twelve to twenty feet in diameter, consisting of much finer material, in which were found many small artifacts. These, I take it, were indications of personal losses, jewelry and weapons that had become covered by the floor debris. In this larger circle, it was not uncommon to find entire stone vessels, probably a part of the household furnishings. This is the space that I judged to have been next to the wall of the hut, where the occupants squatted or reposed in sleep.

The above described remains would indicate that the diameter of the huts ran from twelve to twenty feet, and possibly more, and that they were circular in contour. It is also plain that the structure itself was built entirely of perishable material, as we find no trace of stone or dirt in its composition. From various sources items have been gleaned relative to this form of architecture. Cabrillo's chronicle says simply: "Their houses are round and very well covered, clear to the ground." The earliest explicit account of this architecture that has come to my notice is that of Fr. Pedro Font, historian of Anza's expedition in 1775-1776. He says:

"I once approached a hut that stood open, in order to examine its construction, which of all the huts I had seen along the whole journey, is the best. The form is round, very spacious, large and high, the shape of half an orange. In the center of the top the hut has an opening for the admission of light. It also serves for a chimney, through which the smoke escapes from the fire they make in the center of the habitation. In some of these huts there are, along the sides two or three apertures, like small windows. The frameworks of all are strong poles bent towards the center of the top. The walls are of coarse, dried grass or tules, which is woven in between the poles. In the doorway there is a curtain made of palm leaves or tules. This closes from within, after the manner of a screen. On the outside is another which they fasten with a whalebone or a stick."



Two Graves at "Teolote" No. 2, with Markers Undisturbed

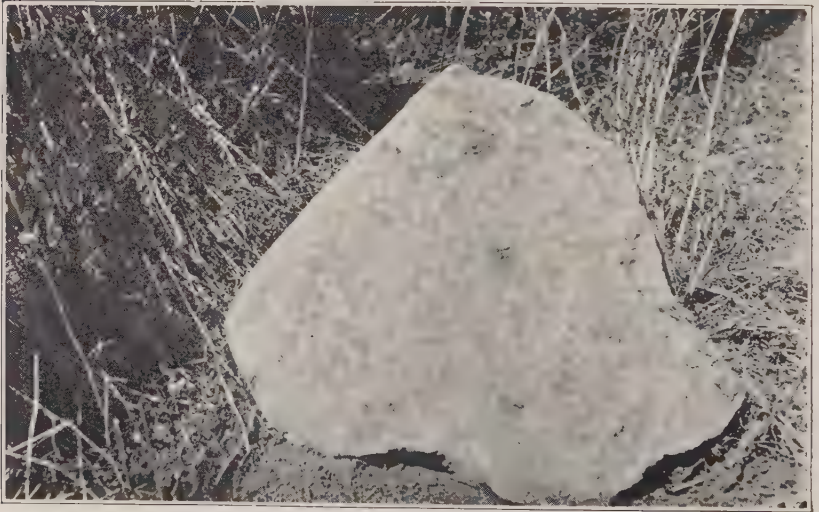


A Series of Typical Grave Markers from the Excavations at "Shuku"

PLATE 62



Detail of Community Mill Situated in Northern Bounds of Barger No. 1



Cup Mark Inscribed Flagstone, Eastern Underhill Mound

The reverend chronicler did well, considering the few moments for observation at his disposal, for he naively observes in conclusion :

"I reached the doorway, and although I made no move to go inside, yet not two minutes elapsed ere they closed the doorway from the inside, and I retired with a new experience."

This is the most complete of the early descriptions, although the huts are mentioned by nearly all of the first explorers. A few ruined "jacales" are still to be found in desert canyons in the interior. From these and from the accounts of the few aged survivors of this cultural group we may, after a fashion, reconstruct the former abodes of the Canaliño.

A series of long willow poles were set upright in a circle, in deep holes that exactly fitted the base of each. The tops were then bent inward and lashed together, forming a hemispherical frame that had a square aperture in the apex. Around the interior of the framework already in place, a series of equidistant poles were lashed horizontally, completely encircling the frame, except at one point near the bottom, where a low, narrow doorway was left. Against these horizontal, encircling poles were laid sheaves of tules or coarse grass, arranged in an upright position, beginning with a band at the level of the ground and continuing upward with successive overlapping tiers, each tier held in place by bent poles on the exterior. These outside poles were sewn fast to the inner poles by means of strong yucca fibers. The method of sewing was interesting. A long thatching needle of whalebone or wood was alternately inserted from the inside and the outside, two workmen being required for the process. The structure was completed by fastening two mats of tules in the doorway, one to open inward, the other outward. This arrangement of doors may seem peculiar, although a similar arrangement may be found in the majority of modern homes, where the main door opens inward and the screen door opens outward. The doorway mats of the Canaliño jacale, however, owed their presence to no need apparent to a Caucasian, but from an Indian's philosophical standpoint there was nothing about them that required explanation. Upon vacating the hut, the last person to go out closed the doorway, as a matter of course using the outer mat. This acted as a notice to all that

no one was at home, and with the Indian code of ethics, the dwelling would be left inviolate. When a member or group of the household returned, the outer mat was thrown back. Should privacy for any reason be desired, the inner mat was fastened in place; this was sufficient notice to the Indian world that there were members of the family at home, but it was equally plain that a caller at that time would be an intruder. Should both valves of the doorway be left open, a welcome would be found within for any who might enter.

Ordinarily used only in inclement weather, these huts at such times were crowded, as many as thirty individuals sometimes seeking shelter within one hut. The different groups were segregated by means of tule mats that served as partitions. Within these compartments were to be found the only real beds ever evolved upon the Pacific Coast of America. Of the exact details of these beds we know little, further than that they included coverlets woven from sea grass. Above the heads of the inmates of the hut, broad slings were suspended, woven from willows and tules, upon which were stored the personal belongings of the family.

All unused materials were thrown out through the door, and this refuse was augmented by that from the open-air fires and banquets, until in the course of time it reached considerable thickness. Sometimes, during this process, a stage was reached when a rearrangement of housing facilities apparently became imperative, for we frequently find hut circles near the top of the refuse formation, and also find early dwelling circles buried beneath several feet of loose debris. It appears certain from this evidence that, when a hut became nearly buried by the encroaching refuse, it was abandoned and a new structure was built upon the crest of the heap, and the depression occupied by the former domicile was utilized as a dumping place.

Let me endeavor to describe briefly the almost unbelievable sanitary conditions that prevailed in these thickly populated towns. There were enormous and frequently none too delicate banquets. Vast quantities of fish, seal, porpoise, crab and shell fish, supplemented by an occasional whale, furnished an abundant feast, until the food became offensive even to an Indian's palate, when the residue was consigned to the ever-increasing refuse heap, the most conspicuous feature of the village. This

continuous accumulation was accompanied by no system of garbage clearance, every particle of the debris being left exactly as it fell, until in other centuries the spade of the archaeologist turned back for perusal this story of one feature of their lives.

There were no sewers or toilets; the waste and wreckage from their existence continued to gather around them until today, after a lapse of over a century of cultivation, ceaseless erosion by wind and rain and great settling through disintegration, these heaps are still found extending over wide areas and covering the original surface to a depth of six feet.

So well does this formation reflect the conditions in those distant times that, even now, many decades after the last contribution of putrid fish and seal was thrown upon the accumulation, the soil of the sites is invariably described by the native Californian as "greasy Indian dirt," from its tendency to stain, with almost indelible greasy soot, everything with which it comes in contact.

When screened, this sooty mass yields vast quantities of debris of a great variety of materials. We find entire and fragmentary artifacts, running through the complete list of Canaliño creations. There are bones of a great variety of the beasts, birds and fishes of the region, and molluscan and crustacean remains in unbelievable quantities, mixed throughout with vast beds of ashes and charred material. Not infrequently we encounter in these heaps isolated fragments of human remains which, in the majority of cases, bear evidences of having been burned or roasted.

Not all parts of the villages were thus used as feeding and dumping grounds. Within the boundaries of each settlement were located other and only slightly less interesting seats of tribal activity. One of these is the sweat house or "temescal." Let us again quote from that charmingly frank chronicler of the early days, who, in 1776, gave the most complete, first-hand information bearing upon the structure and its functions that is now available. Fr. Font says:

" . . . they have a common sweat house, which is a closed, warm room for sweating. They construct it somewhat below the ground, very solidly of poles and earth. In the top there is an opening something like a hatchway, which serves as an air hole and as a doorway through which they enter and

descend within by means of a ladder. This consists of poles stuck in the ground straight, and tied together in such a way that one pole is shorter than another. I peeped into one such "temescal" and perceived that the air arising from within was very warm. In the center of the "temescal" they start a fire, and the Indians enter naked and sit all around to perspire. As soon as they perspire copiously, so that the perspiration wets the ground, they emerge and quickly run to throw themselves into the sea, or stream nearby, for a bath."

Our investigations tend to confirm Fr. Font's description in every particular, and we can amplify his notes in only a few details. While we did not in every instance succeed in locating the village sweat house, we feel certain from the regularity with which they occurred in the majority of cases, that there was one in every settlement of the Canaliño. In the case of undisturbed sites, the former location of this structure is easily determined from the slightly raised circle of earth that remains as a vestige of the earthen dome that once spanned the pit.

A careful excavation carried on at this point never fails to reveal that a partially subterranean circular edifice, approximately fifteen feet in diameter, had once stood there, the floor sunk anywhere from two to three feet below the surface. The framework was probably very similar to that of the residential huts, with the exception that the poles must have been much heavier to withstand the weight of the earth that was banked thickly over the dome, and the added strain brought to bear by the natives, who frequently scrambled over it to enter or emerge from the sweat bath.

The floor level of these structures is covered by a mass of ashes and charred branches of trees, in alternate layers, the charcoal predominating in bulk. The combined depth of these materials is often more than two feet. This deposit appears to indicate that when the ceremony of a bath was desired, a newly built fire was regularly extinguished by the application of water. The resultant cloud of steam which filled the enclosure would materially hasten the desired opening of the pores. When the occupants had reached the extremity of their endurance and the hatch-like cover to the exit was thrown back, a mass of reeking, naked humanity scrambled to the open air and raced for a plunge in the sea. This somewhat heroic treatment was very



Abrading Stone Which Probably Gave the Name "Piedra de Amolar" to the Site Where It Was Found



Four Stages in the Process of Manufacturing the Pestle of the Canaliño

PLATE 64



Pestles of the Canaliño



Canaliño Stone Lamps. Largest figure is ten and one-half inches long

conscientiously carried out by the males of the community, who considered it most beneficial in all cases of real or imaginary ills. It is not clear how the females retained their superb health without the aid of these sweat baths, but doubtless the Indian's philosophy covered this point satisfactorily.

In the last stage of Canaliño village life, after the diseases introduced by the white man had taken a deep hold upon the people, the native turned instinctively to the ancestral temescal as a relief from the introduced ailments. We can imagine the result, when an otherwise able young Indian, feeling the first depressing symptoms of mumps, whooping-cough, measles or scarlet fever, voluntarily subjected himself to a drastic steaming and followed it with a plunge in cold water. The chronicles record nearly one hundred per cent of deaths in such cases. This custom is also probably responsible, in part at least, for the great preponderance in the number of females as compared with the males, at the time of their concentration about the missions.

In form, size and method of construction the temescal of the Canaliño closely approximated the dwelling of the Oak Grove People. The retention of such an ancient model, even though somewhat modified, may easily have been due to a feeling of reverence for the "Ancient-ancient ones," whose history was, even in the time of the first Canaliño, doubtless shrouded in as deep a mystery as it is today. A similar veneration for ancient forms is probably felt for the circular, subterranean "kivas" of the Pueblo Indians of the southwest, in which are held the most sacred mysteries of the various clans of the village. These sacred chambers very closely approximate in form the earliest pit dwellings of that region, and furthermore, the very name for "kiva" in the various tongues of the region is, literally, "ancient house."

Only a very brief account has been handed down to us of the burial rites that prevailed among the Canaliño, before the introduction of Christianity. Probably the most complete comment is that of Fr. Olbes, who says:

" . . . in paganism they bury with the bodies all the pots and other poor belongings. Then they blow smoke over the bodies in the direction of the four winds. And finally the relatives wail over the grave."

An important adjunct of every village was the cemetery. These plots apparently held more than a passing interest for the early white explorers, for nearly all mention them. Fr. Crespi, in his chronicle of the Portolá expedition, in 1769, states:

“ . . . the gentiles had cemeteries. They explained to us that one was for the men, and the other for the women. On each grave was a high pole painted in different colors. From the poles that surmounted the graves of the men hangs their hair, while on the graves of the women swing wicker baskets. In these cemeteries we saw also piles of bones of whales, and basins hewn out of stone, which could be used as holy water and baptismal fonts.”

Fr. Font says in 1776:

“They have also near the rancherias what we called a cemetery, where they interred their dead. This they form of poles and tablets which they paint in various colors, white, black and red, and these they stick in the ground. On some very high, straight and thin poles . . . they put baskets that belonged to the dead; likewise other things . . . such as pieces of cloth, shells, and even pieces of arrows. Over the dead they place the ribs, or other large bones of whales.”

From the foregoing and similar records we obtain certain data regarding these burial plots that, owing to the perishable nature of some material involved and the lapse of time, would not be evident to the field investigator of the present day. We refer especially to the lofty and highly decorated poles and their burden of mortuary offerings, all of which have long since been reclaimed by the elements.

We found that these burial plots were almost invariably enclosed by the residential portion of the village, and usually occupied the highest point, near the center. They overlooked the ocean and the islands, and had a view of a prominent mountain peak. They occupied such points of vantage that from them could be caught the first glimpse of the rising sun and the last ray from its setting.

Within the narrow limits of this plot, usually elliptical in outline, and seldom more than forty-five feet long by thirty feet wide, were laid the majority of the deceased members of the settlement. The form of the interment was apparently uniform in but one respect; each body was wrapped in the “embryonic posture,” with arms and legs doubled tightly against

the chest and the head brought down to meet them. In this posture, the body was placed in the grave in almost any possible position. We find them with the face down, upon the right side, upon the left side, and with heads pointing in every conceivable direction of the compass.

Some portions of the cemeteries were much more thickly occupied than others, possibly indicating a belief in benefits to be derived from this close communion in their last resting place. Any one of several explanations are possible for the crowded condition of the densely occupied portions of the cemeteries, where the older burials have been repeatedly removed to make room for newer occupants. Accident, carelessness, limited available ground, reverential regard for the soil hallowed by the presence of those who had experienced the mysteries of the great beyond, any of these could have played a part.

An interesting suggestion has been made by an acquaintance who, several years ago, made a brief investigation among the Ainu, the primitive aborigines of the Japanese Islands. The custom in vogue among this people of burying in the midst of densely occupied cemeteries aroused his interest, and inquiry eventually revealed a somewhat profound philosophy current among them of matters pertaining to death. They contend that "no one now living knows anything of what awaits them after death. If anyone is posted in this, it is he who has passed beyond. Hence we will place our recently departed friend as close as may be to those who have long since tasted the realities of the hereafter, preferably beside those noted during their lifetime for their ability to lead or teach." For these reasons, the vicinity of the graves of former chieftains and shamans are found crowded by later burials. This probably offers a clew as to the motives that actuated our Indians. In our investigations, it was no uncommon occurrence to find three or four skeletons in one grave, undisturbed and closely superimposed. In other instances, all of the former burials had apparently been removed, and the recently deceased placed in the bottom of the grave. The former burials were then replaced, not of course in their original arrangement.

In a few instances, an almost unbelievable congestion of burials was encountered. At the site named "Las Llagas No. 1," from a single trench, eight feet long by four feet wide, and forty-

eight inches deep, the remains of twenty-four individuals were taken. From the lower part of this trench, shell beads, literally by the quart, were recovered. These had sifted down from the numerous burials above.

At least a part of the customs that were in use as burial rites were doubtless the direct result of superstitions fostered by ingenious shamans. Still others were the result of symbolism that had been cherished for generations. Puffing of smoke upon the corpse and then directing the jet to the four corners of heaven symbolized the release of the spirit from the cumbering flesh and its freedom to depart whither it would. The body that lay face down signified plainly that the departed had turned his back upon this world, from whose activities he was forever barred, and now faced the unknown future. The flexed posture of his body was eloquent of the fact that, as he had been born into this life in this position, it was eminently fitting that he should enter the next life in the same posture that the gods had directed for his arrival into this.

The presence of a small canoe of wood, bone or stone in the graves of infants at first excited only casual interest, but the mumbled monosyllables of an old man partly of Canaliño descent suggested the following explanation. The Indians believed that the adult, well versed in all the lore of woodcraft, was abundantly able to find his way across the trackless wastes that separate this life from the life beyond. Not so with the inexperienced infant, who was therefore buried with an enchanted miniature canoe, destined to ferry the helpless little soul across the dismal channel of the Styx.

To the student especially interested in the varied customs noted in different groups of the same race, the grave itself is well worthy of study. Within the territory under discussion, all of the burials examined in one village ordinarily conform to one general convention, while, separated from this settlement by perhaps only a few rods, was another that from its beginning had followed a widely different practice.

Probably the form of grave most frequently encountered was an elliptically outlined pit, measuring from thirty to thirty-five inches long by twenty inches wide, and extending downward to hard soil. At the bottom, directly upon the hard subsoil, was placed the flexed and wrapped corpse. About it were laid the



Baking Stones (Conal). Breadth of largest specimen shown, nine and one-fourth inches



Basket Mortars of Improved Type Used by the Canaliño. Diameter of largest figure, nine and one-half inches



Series of Canaliño Paint Mortars, Invariably Fashioned from Sandstone

most cherished possessions of the deceased, frequently with a great stone bowl, face down, over the head or hips of the corpse. This form of burial could be, and frequently was, modified in several of its details. In the village of "Mikiw," a layer of beach sand was laid in the bottom of the grave, a custom that entailed a vast amount of additional labor and the significance of which it is difficult to understand.

In some villages, the newly made grave was subjected to protracted firing, which turned the bottom and side walls red and left a deposit of ashes in the bottom to receive the body. Since the latter in no case showed any evidence of an attempt at cremation, I judge that the ashes were given time to cool before the interment took place. Another custom in vogue in some villages was to cover the body with a great slab of whalebone, sometimes a section cut from a rib to fit the size of the grave but generally the entire scapula. A not uncommon custom, found in several villages, was to cover the new grave completely with a closely laid pavement of flat stones of approximately the size of the hand.

At one site, "Kolok," the graves were of a more studied form. Circular pits, about four feet in diameter, had been sunk to the hard subsoil, about thirty-eight inches below the surface. Around the sides of this excavation were placed enough large stone slabs to encircle it completely, with each slab standing on end. Over the sides and bottom of this walled-in pit was smeared a thin coating of clay and the pit was then fired until the entire interior was red. Within the first of these enclosures examined, five flexed bodies had been placed very close together, none showing any evidence of having been disturbed; in another similar grave six skeletons were found. Another structure closely adjacent and identical in every respect bore no evidence of having been occupied by burials. Over the pits containing the skeletons was a closely laid platform of beach boulders which conformed closely to the outline of the circle of standing slabs. These varied greatly in size, some weighing no less than sixty pounds each, while the smallest were of no more than a pound each in weight. There were twenty-eight of these upon one grave. The great diversity in the size of these stones was probably the result of premeditation on the part of the builder, the chief motive seeming to be to close all openings completely. No

personal belongings worthy of note were found in any of these unique tombs.

We can but conjecture the mode of procedure in this style of interment. Since the form of sepulchre just described could not have been constructed upon short notice, we are led to infer that they were built at leisure and held in readiness for such occasions as were sure to arise. The finding of one such structure unoccupied would seem to substantiate this theory. But this conclusion only makes it more difficult to understand what course of procedure was followed in utilizing these empty tombs, since none of the skeletons showed evidence of having been disturbed. We are not prepared to admit the likelihood of deaths conveniently occurring in groups of five or six simultaneously.

In several of the cemeteries we found in the graves upright sections of whale ribs that had evidently once extended above the surface, but owing to the vicissitudes of time, weather and cultivation, none of the parts that had once been above the ground are now to be found. The stumps left underground would have proved somewhat puzzling, were it not for the records left by earlier writers. Dr. J. T. Rothrock, in 1875, reports the finding of an ancient cemetery upon the crest of the island of Mescalitan, near Goleta:

“ . . . founding his belief on the fact that he had seen a number of whale ribs placed so as to form arches over certain spots, as we well knew that the Santa Cruz Island burial grounds were similarly marked.”

Time proved the soundness of Dr. Rothrock's deductions, as this spot on Mescalitan proved to be the richest in artifacts of any ever explored in this territory, and is still yielding a rich harvest of relics to the investigator, even after a systematic plundering that has extended over several decades.

Fr. Crespi makes the flat statement that:

“ . . . one [cemetery] was for the men, and the other for the women.”

We have occasionally found two distinct cemeteries, separated by an appreciable interval of unoccupied soil. This arrangement seems clearly to indicate that one division of the settlement was excluded from burial in the cemeteries of other

divisions. What more probable than that this line of cleavage should, in primitive society, be drawn between the sexes. The results of our excavations appear to substantiate this conjecture. While, in many cases, it is impossible to determine the sex of a particular skeleton, in the majority of cases this can be done with certainty. Even allowing for some uncertainty, we believe that Fr. Crespi's statement is abundantly corroborated, and that the sexes were restricted to their own plots of ground after death.

These plots may be widely separated, or they may have a bilobate contour so that the two departments are in contact with each other at some point. In still other instances, both cemeteries are included within the boundaries of a symmetrically outlined plot, although even in such cases the sexes are confined each to their own half. These latter forms, I take it, are found where the original cemetery was laid out on too limited a scale and the two sections had grown together.

Among the many intimate glimpses that we obtain of this people, through a study of their cemeteries, is the evidence of great mortality among infants. This tragic phase of their lives may be readily traced to several causes. First among these was the almost total lack of facilities that are now deemed essential at the time of child-birth. As a place of delivery, the patient would conceivably have the choice of three locations. First, the noisome, dark, smoky, vermin-infested hut that she looked upon as home in time of inclement weather. Second, the open reaches of the refuse-strewn village site, with its attendant droves of half-wild dogs, and third, the desert or brush-land that lay outside the bounds of the settlement. Each of these locations, from a modern point of view, seems strangely lacking in those features that we now look upon as necessary for the amelioration of the mother's sufferings and the proper conservation of the young.

While we admit that the Indian women, through generations of living according to nature's laws, were probably better constituted physically than women of today to endure child-birth, the vicissitudes of inclement weather, heat, thirst, filth and the unrestricted presence of thronging humans, dogs and insects would, we believe, more than counterbalance the advantages of physique.

Along with the above disadvantages there were others. There was doubtless no more than a primary knowledge of obstetrics, and nature was relied upon almost exclusively. The needless suffering from this source must have been great. In several instances we have found indisputable proof of cases where women had died in child-birth.

Another source of great discomfort to mother and child must have been the total absence of soft and sanitary fabrics, which this people had never learned to weave. Neither had they reached proficiency in the tanning of hides, so that the soft, chamois-like wrappings of the Indians of the northern plains were not available. We can imagine no substitutes that these poor, primitive women employed to take the place of soft cotton and flannel, the bandages and lint, now looked upon as indispensable during child-birth. And these items are doubtless indispensable, for we find a shocking prevalence of infant mortality here where they were absent. I believe it to be no exaggeration to say that fifty per cent of the skeletons in the cemeteries of the Canaliño are those of infants under two years of age. Of these, perhaps thirty per cent had died at birth. A large proportion of the remaining seventy per cent could conceivably have been saved had this people possessed even a rudimentary knowledge of hygiene and the simple remedies for children's ills.

While we have this subject before us, I will mention another phase of this problem of child-birth that gives an indication of a strange superstition. In seven instances, four upon the mainland and three upon the Channel Islands, I found skeletons of women, each accompanied by two newly born infants. The first of these I assumed was that of another unfortunate mother who had not been properly cared for at a crucial time. The frequent occurrence of similar remains, however, changed my conclusions. I now believe that twins were held to be very undesirable arrivals, and that not only were they eliminated, but also the mother who had been so uncircumspect as to usher them into this hostile world. Among many of the surrounding peoples, there existed this repugnance to the arrival of twins. With some of the groups, it was a regular practice to destroy one member of the pair and in some instances both. I believe that in at least the seven cases that I mentioned, this practice was carried to

the extreme by the Canaliño and the mother shared the fate of her offspring.

The necessity of doing away with the mother in these cases did not seem in any way to have diminished the regard in which she was held. In one instance, I found an unfortunate young mother laid away among a wealth of personal adornments, and, at each side of her head, a steatite olla, carefully sealed with a whalebone slab and containing the remains of a new-born child. Several older burials had been removed to make room for this mother and her children, who had broken some decree of the gods.

One phase of the burial customs of this region that is most disconcerting to the mere hunter of relics, is the havoc wrought, at the time of interment, with the cherished possessions of the deceased. It is not uncommon to find, in a grave, a wealth of artifacts, every one of which has been ruthlessly destroyed. In the case of warriors, their arrows, spears and knives have been snapped from the hafts. In the case of women, we may find stone bowls, both large and small, broken into several pieces but all close together, as though the vessels had been placed in the grave and afterwards crushed by heavy blows. This view is strengthened by the presence, among the fragments of sections of the fine large pestles with which the blows had been delivered, the scars of the impact still being visible. An extreme instance of this practice was discovered at Burton Mound, where a once fine, large, steatite olla was found covering a skeleton. This splendid vessel had been broken during the ceremony into more than a hundred pieces, none of which was over two inches in diameter.

No feeling of conservation or economy was ever evinced in connection with this custom; the results of months of patient labor were destroyed, doubtless in a striking symbolism of the life of the former owner, which had also been so suddenly broken in the midst of a useful career.

Not all burials by any means were thus treated, for many perfect artifacts were recovered from single graves. There were even entire cemeteries where the custom had not been carried out; in others the practice was consistently carried out in the majority of graves. The reader will remember that, from the cemetery of Las Llagas No. 1, no less than one hundred stone

bowls and numberless other artifacts were taken, all of which were deliberately demolished.

There is little difficulty in judging the position which the individual had held in the estimation of his associates, by the material with which they surrounded him in the grave. The warrior was accompanied by his weapons and heavy personal adornments. The mature woman lay among her household utensils, and usually had more refined personal adornments, together with hair ornaments of a design never found with the men. The priest, or shaman, had beside him the symbols of mystery by which he had maintained his hold upon the people during his lifetime. The young woman continued, in death, to wear the characteristic garment that distinguished her class during life, and the young man was still resplendent with the wealth of ornaments that had doubtless distinguished him when alive. In strong contrast with the foregoing were the burials of those at the extremes of life. The skeletons of the aged were absolutely devoid of accompaniments; the infant was literally surrounded by trinkets and toys, and not infrequently had beside him a miniature canoe.

Random burials were occasionally encountered almost anywhere in the village site or even outside the bounds. In a great many cases, these were found beneath the floors of huts, in others they were in the refuse heaps outside. Still others had been placed in shallow pits outside the village proper. These random burials may have been due to the same causes that even today might lead to a hasty and secret interment, as, for instance, in the case of a murder. I believe that, at Burton Mound, there was found conclusive proof of a least one such instance, where a headless skeleton of a young woman was found in the muck of the marsh that had in former times edged the village site. In other instances, outcasts may have died who were not deemed worthy of associates in death, and were hence unceremoniously consigned to the refuse heap. We may even suppose that an alien visitor had died and that his hosts deposited the remains in the nearest convenient spot outside the village. Whatever the motive for these irregular interments, they apparently bear but slightly upon the almost universal tendency to surround each burial ceremony with loving remembrance and veneration.

The rapid disintegration of the native culture is plainly illustrated by the articles that accompany the later burials, where we find that the appropriate artifacts of Indian creation have in large measure been replaced by the incongruous pottery, iron, brass and glass of the white trader, and by empty bottles.

Another adjunct of each village, the dance floor, might from its very nature have been overlooked. The comments of the early explorers, however, stimulated the writer to a careful search, so that during the later stages of the field work he was able to locate the former dance floors almost unerringly.

Fr. Crespi states briefly:

"We paid special attention to a very cleanly kept enclosure which we were told was used as a playground."

And Fr. Font a little more explicitly says:

"All the villages and rancherias along the channel have their common playground. It is a piece of land cleared and leveled, and having low walls all around as in the case of ball games. There they play by running after a piece of rounded wood."

Besides such brief and rather indefinite allusions to the floor itself, we obtain from the various writers testimony as to the general tendency of the Canaliño to express his emotions by dancing, for all give reports of pleasing individual exhibitions of this art at various villages. I believe that no village of this people lacked its ceremonial platform, or dance floor. It doubtless served in the various capacities of athletic field, festive dance floor, and stage for all open air ritualistic ceremonies. Ordinarily broadly elliptical in outline and of considerable area, it occupied a prominent position in the settlement, usually close to the cemetery, temescal and sacred council chamber, all of which probably had more or less related functions.

The physical aspect of these platforms was retained, to a certain extent, for many years after their abandonment by the Indians, for Dr. H. C. Yarrow, who headed a party of explorers in 1875, speaks of one overlooking Goleta Slough:

" . . . a depression in which appeared to have been either a threshing floor, or a dancing place, oval shaped and sixty feet long, by thirty or forty feet wide. It had been

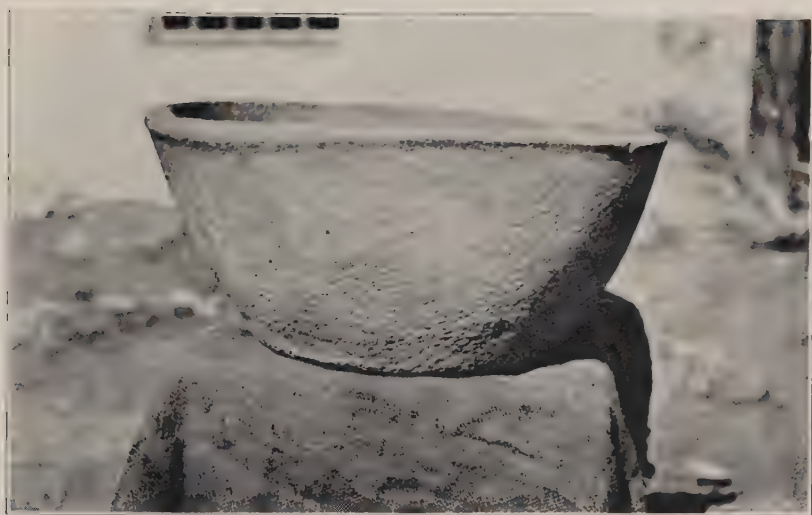
beaten or trodden down so firmly that no vegetation could flourish thereon."

The condition of these platforms has become much altered in the fifty years that have intervened since Yarrow examined them. Burrowing animals have driven passages through them and their dens have been established beneath the once impervious floors. These have admitted moisture and attendant vegetable growth and have eventually fallen in. The plow and the cultivator, and even an occasional subsoiler, have wrought havoc, and as a final touch inexperienced relic hunters, mistaking the outlined plot for an indication of hidden treasure, have performed prodigies of labor in digging up sections of the stubborn floor.

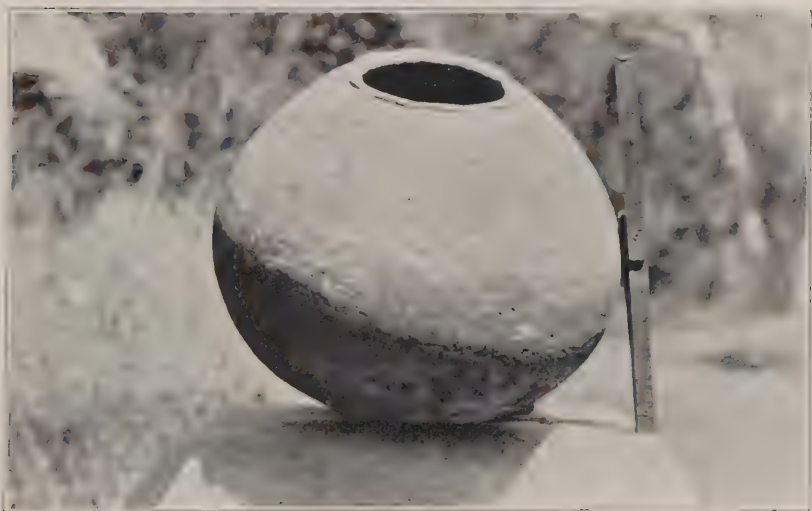
From the foregoing brief outline of the conditions that now prevail in these ancient ceremonial platforms, it is evident that the intelligent reading of these ragged pages from the past is no easy task. Their sites are now usually marked by an almost imperceptible depression in the prevailing surface. Careful excavation here will establish the location of the former level of the original floor. No accumulation of camp debris will be found superimposed, for evidently this had been carefully excluded. Every stone, of whatever size, has been removed from the entire area and has been carefully piled in the form of a low wall around its borders. I believe it likely that stones were brought from other places and added to the wall, as it is usually from six to ten inches high and continuous about the entire circumference. This border also includes, at times, four large boulders placed at about the four cardinal points of the compass. These boulders are sometimes found to be marked, on the sides that face the enclosure, with "cup-carvings," or small pits in clusters.

The enclosures vary somewhat in size but are ordinarily about sixty to seventy feet in diameter at the widest part. It is not uncommon to find smaller auxiliary circles, adjoining these larger platforms and resembling them in all particulars except size. There can be little doubt that these smaller circles held an important place in the life of the village but their significance will probably never be fully understood.

Another important feature of at least a few communities, while touched upon by some of the earliest writers, seems never



Large Sandstone Bowl from Las Llagas. Nine inches high,  
twenty inches in diameter



Steatite Olla from Cemetery of "Mikiw." Eleven inches in diameter

PLATE 68



Steatite Ollas of the Canaliño, Showing Range of Size



Steatite Olla. Eleven and one half inches high, thirteen inches in diameter. Has been repaired by Indian owner, lashing and asphaltum being used for the purpose

to have been clearly understood; there are references to certain enclosures which were believed to be temples. Cabrillo says:

" . . . and they have an enclosure like a circle, and around the enclosure are many blocks of stone placed in the ground and reaching above the surface about three palms in height, and in the middle of the enclosure are many sticks of timber driven into the ground like thick masts, and on these posts are many pictures, and we believe they worship there, for when they dance they caper around the enclosure."

There is a possibility of the "enclosure" depicted above having been merely the village dancing platform, but we are inclined to look upon it as the earliest described sacred council chamber of the Canaliño.

Fr. Crespi's journal briefly says, in this connection:

" . . . paid special attention to . . . an enclosure . . . which we were told is reserved for religious ceremonies."

At a much later date Prof. F. W. Putman, Curator of the Peabody Museum, in summarizing the results of the Wheeler exploration in 1875, says:

"That each tribe or village had a general council-house, or some specific edifice of a public nature, is very probable, and Boscana has described a structure—which he designates as a temple . . . This "temple" seems to have consisted simply of two circular fences, one of which was six feet high, and as they were not roofed in, the temple was very much like the staked areas of the Indian tribes of the Atlantic Coast, and in which they performed some of their ceremonies."

The present exploration has definitely determined that among at least some of the villages, there were established centers of some kind for council meetings or cult practices. At three widely separated village sites were encountered vestiges of circular areas, apparently slightly sunk and surrounded by a circle of large boulders. Inside this circle are to be traced segments of another circle, which had been constructed of smaller, flat stones standing on end, their present position doubtless being due to their having been originally partly imbedded in the floor. Inside of this inner circle and probably occupying places in the interior of the chamber, were several other boul-

ders, arranged at various locations, as if with design. These stones in nearly every case were of unusual form, although I do not look upon them as artifacts. I take them rather to be natural products which by their freakish contour had appealed to the primitive mind as suitable objects with which to furnish the sacred council house. These objects appear to have been selected on no general plan, but each has some quaint individuality in form.

I found none of these sacred chambers intact. This was not alone due to the lapse of time, after the village ceased to be occupied by the Indians, but also to the fact that, in each of the few instances where such centers were found, the place had evidently fallen into disuse while the village was still occupied, and had been partly used as a cemetery. From these vestiges, however, several interesting facts were disclosed. One of these is that these enclosures were invariably closely adjacent to the cemetery and dance floor, this seeming to indicate a probable connection between them in ritualistic observances. Another outstanding feature was the presence in one of these ruins of two clusters of the sacred, cigar-shaped "charm stones," apparently as arranged by the shaman, all radiating from a central, circular piece that was encircled by a band of asphaltum and rested in a small cup-shaped boulder, like a golf ball in a tee. I believe that in this exhibit we have a medicine man's shrine *in situ*.

Many other artifacts of the same class were found in the enclosure, which had apparently been disarranged by subsequent burials, as there appeared to be no system governing their arrangement. It is even conceivable that, in a few instances, they had been buried beside their shaman owner. In whatever light these strange symbols are interpreted, they seem certainly to have been held in extreme veneration, as they appear to have taken precedence over all other paraphernalia of the priesthood.

Within this same enclosure, I also found four crudely made, stone effigies of whales, a few pipes and two of the strange, so-called "snake heads," in which I believe there is phallic suggestion. There was also a unique "gambling top," or die, well fashioned of milky translucent calcitic stone. The entire area shows strong evidence of having once been the sacred center for the inhabitants of this village.

Whether the final decay of these centers is due to the arrival of the white man and to consequent Christian influence, or is to be ascribed to other agencies, will perhaps be a mooted point. So far as our investigations have shown, these sacred centers were far on the road to decay before the advent of the Spaniard.

A few of the structural features of these enclosures can be determined. They were about twenty feet in diameter and of a circular contour. A circle of rather massive boulders marked the periphery. This ring enclosed another of small stones set on end, at a distance of a little over three feet from the outer ring. Within the inner ring were all the other sacred symbols and strangely formed stones that we have previously described. Whether this sacred compound bore a roof, I did not have sufficient evidence to determine. I am, however, strongly inclined to the belief that it was open to the sky. It is perhaps appropriate, in this connection, to call attention to the massive walls that were disclosed near the crest of Burton Mound in 1924. The steam shovel, in cutting down the northeastern shoulder of the former Indian village site, uncovered a series of three nearly parallel walls of beach boulders, of unknown extent. Probably but a small fraction of them were exposed at the time and we could not obtain permission from the owner to explore them farther. But, considering the fact that the Heye Exploration, in 1923, found similar structures a short distance to the south of this series, and that these extended in a direction that might easily lead to a junction of the two, and coupling this with the fact that they were flanked on two sides by thickly occupied cemeteries, I believe that we may tentatively classify these remains as either the border walls of a dance floor or those of a ceremonial enclosure. There is also a possibility that the small duplicate circles, which I have mentioned, in some instances indicate the presence there of the sacred council compound.

The development of craftsmanship, in the cultural period that has been ascribed to the Canaliño, is remarkable, when we consider the conditions under which it developed. This people had been immediately preceded, in this region, by an active, capable race of hunters who had scarcely emerged from savagery. The objects produced by this race, while they probably fulfilled all the demands placed upon them, were at best very crude in conception and execution, if we except their weapons, which

were rather in advance of their other products. This people had, in their later years, become less virile and had been reduced in numbers, and probably retained only a vestige of their former greatness when they were absorbed by the invading maritime Canaliño horde.

There was probably little about the life and customs of this fading race that would appeal to the accomplished craftsmen of the invaders as being worthy of perpetuation. As a matter of fact, only one form or artifact found among the remains of the Canaliño shows any relationship to that of the Hunting People, namely the basket-mortar. This utensil persisted to the time of the entrance of the Caucasian upon the scene, but during Canaliño time it was of greatly modified form, the ever-present tendency of this people to refine and beautify being much in evidence. Instead of the natural slab, used as a nether stone, with its attached basket, we now find well formed circular mortars, shaped both inside and outside, with carefully flattened bottoms. After the mortars had been thus fashioned, the basket-hoppers were regularly attached to their rims with hot asphaltum.

I should say that there were two possible explanations of the presence of this utensil with the Canaliño culture. Either it had been evolved by this people to the form in which we find it before their advent in this area, or else the convenience of the superimposed hopper had at once appealed to them upon their arrival and it had been promptly attached to their already existing mortars.

There were, however, in constant use, from the earliest advent of this race in the valley, many well-formed deep mortars that had no basket attached. Not a few of these are found worked into the upper surface of large earth-bound boulders, located either within the bounds of the village or closely adjacent. It is not unusual to find this latter form occurring in clusters of from two to ten closely associated mortars, as though the act of milling had also been made the occasion for comradeship among the women.

The location of some of these mills was peculiar. One instance will suffice to illustrate this. At a distance of several rods from one village site was found a huge boulder, within whose crest, five feet above the surrounding surface, was a deep

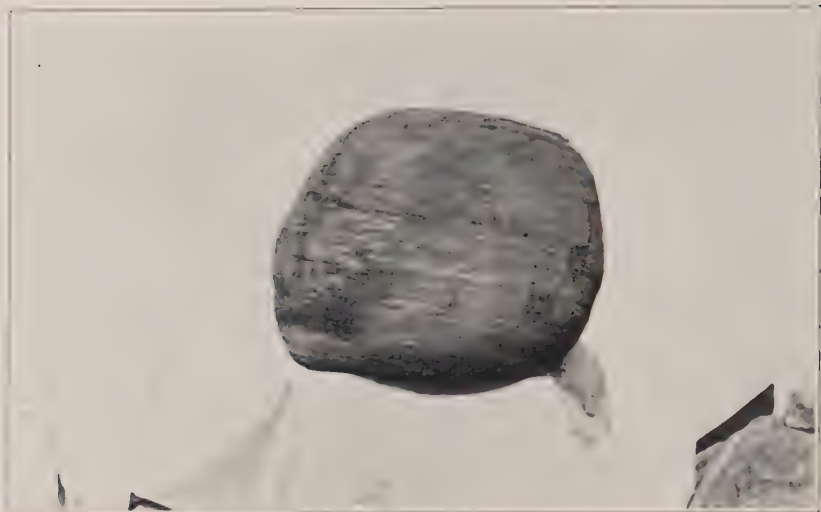


Canaliño Bowls Fashioned from Staurotide. For individual use



Highly Finished Individual Small Stone Bowls. Canaliño

PLATE 70



Large Canaliño Basket from Rock Shelter. Twenty-three inches in diameter



Canaliño Basket from Rock Shelter. Eleven and one-half inches in diameter

mortar that showed the effect of long usage. The location is all the more remarkable from the fact that the boulder was quite difficult to climb.

The cavities of the acorn mills of the Canaliño are remarkably uniform in diameter, seldom being more than eight inches or less than six inches. In depth there is a wide diversity, of from three to ten inches. It is perhaps needless to say that it is the more shallow forms which bear evidence of having had basket-hoppers attached.

The pestles which accompany these mortars are, in nearly every case, works of art. They cover a wide range in size and design. Cylindrical, double-ended forms are found, although these are of rather rare occurrence. These pestles are ordinarily true cylinders, straight-sided and beautifully wrought, although sometimes they are found with bulging centers that give them a keg-like outline. The commonest type is the plain tapered form in which the apex is brought to a rounded point, the base, as in all forms, being a broad flattened convex surface. The third class, almost as numerous as the last mentioned, is by far the most interesting of all. They are carefully wrought in every detail, with a perfection of line that is constantly reminiscent of lathe work, although these artisans had never dreamed of mechanical aid in their productions. Long and slender, with the apex decorated fantastically with some geometrical design, these artifacts never fail to arouse the interest of observers. There is considerable variation in the length of these pestles, although the diameter of the base remains quite constantly between two and one-fourth and two and three-fourths inches. The pestles used in grinding acorns run by almost imperceptible gradations from six and one-half to twenty-seven inches in length.

An interesting study in primitive methods of manufacture is illustrated by a series of these pestles which were found in various stages of completion. The first stage illustrated is an elongate beach boulder which has been roughly chipped along one side to straighten it. The next specimen has been roughly shaped on two sides. Still another shows the steps taken to bring the object to the round contour that is found in the finished product. We may trace the entire process of creation, step by step, even to the final act of polishing in all its stages.

The tools employed throughout were the crudest implements imaginable. For the rough chipping, the Canaliño used a fragment of tough, old "green-stone," brought from the mountains and chipped to a ragged edge. For the final act of polishing, an abrasive bit of sandstone was employed, the stone to be polished being kept wet.

Another and allied class of utensil was that employed in the reduction of paint, a commodity that appears to have been very much in demand throughout the entire period of American pre-history. The implements used in this industry differed from those employed in grinding food, principally in being much smaller, but other differences also existed. The basket-hopper, for obvious reasons, was never employed in grinding paint. The mortars used were not only smaller but much more symmetrical, the usual form being a beautifully wrought subspherical thick-walled bowl, with rounded bottom. These mortars range in size from one and one-fourth to six inches in diameter, and are ordinarily found permeated with red pigment. It is doubtful if the smaller sizes were ever used in the actual grinding process, no pestles of corresponding size being found. It is much more likely that they were only convenient individual paint containers. The pestles employed in paint grinding are invariably of the plain, tapered variety and are quite small, ranging in length from three and one-half to six inches, and in diameter at the base from one to one and a half inches.

In common domestic use were bowls of capacities that varied from one pint to those of six or seven gallons. These bowls are probably the best extant illustrations of the tireless patience and perseverance of the Canaliño. Flawless boulders of tough sandstone were selected and brought to camp, often with tremendous exertion, as these larger undressed stones must have weighed several hundred pounds each. With infinite care, and by using the same crude but efficient tools with which all their work was accomplished, these boulders were slowly brought to the desired form. Large sections of the outer surface were pecked away, the workman always stopping at the point destined to be the periphery of the future bowl. Simultaneously the flattening of top and bottom and the hollowing out of the interior was carried on. Every stage of the process may be traced in the uncompleted specimens found at the various sites.

The completed bowls are things of beauty, of two distinct types. First we find those of oblate-spheroidal contour, thin-walled and with rounded or acute rims. This type is very interesting, yet it lacks much of the exactness and delightful finish that we find present in the second type. There is, in fact, rather more than a casual resemblance between them and the acorn mortars of the same period, there being intermediate forms which no one could positively classify among either the mortars or the bowls. The bowls of the second type are in the form of inverted, truncated cones, the bottoms being flattened and the sides curving upward and outward to the rim, which has the largest diameter present in the vessel. This rim is invariably flat, sometimes horizontal and at other times sloping downward toward the outside; its width is invariably greater than the thickness of the walls, causing either an outflare or an inflare. The flat top of the rim is not infrequently decorated by a well-defined groove along the center. Vestiges of asphaltum and an occasional bit of abalone shell, imbedded in this groove, have led me to believe that it once held an inlay that completely encircled the rim.

The variations in the form of the rim and the lesser variations in the form of the bowl itself appear to be local characteristics, all of the vessels of one community conforming very closely to one type and those at a distance to another. The dimensions of one of the larger specimens is as follows: diameter of rim, nineteen and three-fourths inches; diameter of bottom, twelve inches; height, ten and one-fourth inches; thickness of walls, one inch; width of rim, one and one-eighth inches. A small specimen has the following dimensions: diameter at the rim, eight inches; diameter of bottom, three and three-fourths inches; height, five and one-half inches; thickness of walls, five-eighths inch; width of rim, seven-eighths inch.

The use of the smaller bowls may only be conjectured; they may have served as individual dishes. The larger sizes were undoubtedly cooking vessels, functioning by means of heated stones which were dropped into their contents. This is the vessel that suffered the greatest destruction in the funeral rites, only a few having been found intact.

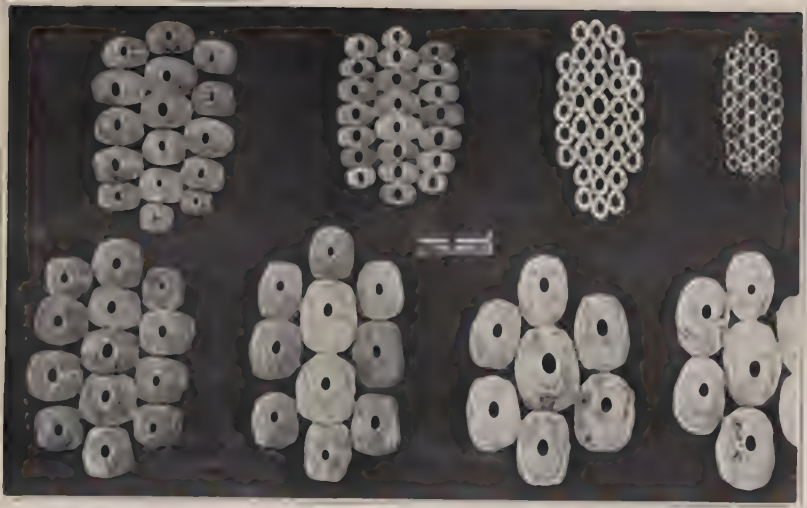
Another type of vessel that occurs with considerable frequency is the so-called "olla," a container cut from steatite,

and varying in size from a capacity of one quart to that of five gallons. There is little variation in the type; all are globular in form and thin-walled. The mouth of this vessel appears to conform in size to the clenched hand which was thrust through during the process of scraping out the interior to the desired capacity. About the orifice is a raised rim or roll, usually decorated with a cross-hatch design, the entire vessel appearing to follow very closely a basket prototype.

Steatite with its pronounced content of mica crystals furnishes the one material found in this region that was capable of resisting the action of fire and sudden cooling without cracking. This quality seems to have appealed strongly to the Canaliño at an early date. A vast amount of energy must have been expended in acquiring it, for so far as we have been able to ascertain there was no natural occurrence of this material nearer than the island of Catalina; there certainly was none within the confines of Santa Barbara valley. If we assume that all of the steatite artifacts found in our territory had their origin in the quarries of Catalina Island, we begin to realize the enormous effort that was required to transport it.

To secure a steatite bowl necessitated a two hundred-mile ocean voyage in boats propelled by paddles, with the attendant perils of such a trip. At what price would the reader hold a plain stone bowl to secure which one had had to row a dory from Santa Barbara to San Pedro, thence across the channel to Catalina Island, and then back over the same route? The incentive that spurred the Canaliño to such an effort is almost incomprehensible. With all the hazards and efforts involved, it does not appear reasonable to think that our Barbariño would return with a steatite boulder in the rough, when he was faced by the strong chance of breakage while it was being fashioned into its final form. I believe that these bowls were made near their native quarry and were bartered for in their finished state. Corroborative evidence of this is found in the alien art displayed upon them, and the fact that no chips or dust from the manufacturing process has ever been found here.

Several other forms of vessels were used by the Canaliño. The most striking of these are small, beautifully formed, shallow bowls of serpentine and staurotide, several showing line engraving and even shell inlay. One splendid little bowl of close-



Limpet Shell Hair Ornaments of the Canaliño Women, Illustrating  
the Evolution from a Natural Form to one of  
extreme fragility



Contrasting Canaliño Necklaces



Necklaces of Mainland Canaliño



Necklaces of Mainland Canaliño

grained red sandstone, closely resembling catlinite, was found. In form, this follows closely the lines of the large sandstone bowls, even to the grooved rim, which retains a part of the inlay, in this case consisting of wampum set in asphaltum. The dimensions of this little gem are as follows: diameter at rim, four and one-half inches; diameter of bottom, two and seven-eighths inches; thickness of walls and rim, three-eighths inch; height, two and one-fourth inches. These charming little vessels were in each instance found filled with beads and other personal trinkets, resting beside a skeleton in an important grave. I believe that during the life of the individual they had served as receptacles for cherished belongings.

Another form of vessel that is sometimes found is less easily classified. I refer to the elongate, narrow, shallow containers, with well-defined marks of carbon around the rims. These were in every instance found within the ruins of residential huts, or in those of "temescals." Their location, the presence of the burned fat about the rims, and their close resemblance to the oil lamps of the far north, have led me tentatively to classify them as grease lamps that were used within doors. They vary somewhat in form, and are fashioned from a variety of stone materials. I select a typical one for measurement and as the subject of illustration. It is of steatite, ten and one-half inches long, five and one-half inches wide at one end and three and one-half at the other; the oblong cavity is one and one-fourth inches deep.

Of fairly common occurrence are broad, flat, slightly curved slabs of steatite, some fashioned from fragments of "ollas," others evidently cut directly from the rough stone. These objects are much wider at one end than at the other, the narrow end being pierced by a large hole. They average about twelve inches long by ten inches wide at the widest end, and are about three-fourths of an inch thick. These utensils were in general use in the southwest, where they are commonly known by the Aztec name of "comal." Their function was like that of the modern pancake griddle. A pone of acorn paste was placed upon the slab, which was then laid upon the coals. When the cake was baked, the slab was withdrawn from the coals by means of a hooked stick inserted in the orifice.

I found no entire ladles, but several fragments from the

debris heaps would indicate that they were in quite common use. Ladles of wood were found by the Yarrow expedition. This type has now disappeared from the village sites and only the fragments of stone ones remain.

Probably the most common forms of household utensils were the large abalone shells that served as individual dishes. The row of natural orifices in these shells would have made them useless as containers had not the ingenuity of the native overcome this defect. We find these natural orifices plugged with asphaltum; in nearly every case these plugs were decorated with wampum. In a few instances, the rims of these shells have been embellished with carvings in simple designs.

The Canaliño in nearly every phase of his activities made liberal use of asphaltum, a material that is found occurring naturally and in abundance on these shores. This material was kept conveniently at hand in kneaded cakes. The method of applying this adhesive substance was simple. A long, slender stone, with a rounded extremity, was heated and placed against the hardened cake of asphaltum. This caused the substance to flow freely upon any object where it was required, uniting with it almost inseparably. The process approximated that of the modern tinner manipulating his soldering iron. In lieu of a specially selected stone for the work in hand, it was not uncommon for the artisan to use the small end of a tapered pestle for the application of the pitch; we find these utensils still showing the effects of heating and with asphaltum stain still present.

One would suppose that a race that subsisted exclusively on meat, fish and acorns would entirely lack all forms of agricultural tools. This is in the main true. At the same time, we must realize that in the course of the numerous interments, the sinking of pits for "temescals" and council compounds, and the seating of numberless supports for huts, there was a certain amount of digging required. For this purpose, an implement that I have designated as a "digging stone" was employed, a long, slender, thin slab of tough stone, roughly sharpened upon the end and upon one or more edges, with the upper end usually rounded as a hand-hold. A favorite size was about ten inches in length by three inches in width, and three-fourths of an inch in thickness. These implements were almost invariably found within

the boundaries of the cemetery plots, as though there had been the scene of their chief use.

Scattered at random over the village sites, one finds numbers of small, flat, rounded stones, upon one or both sides of which occur scars or pits. Long and patient study of these objects has confirmed me in the belief that these stones may be separated into at least three distinct groups, each group differing widely from the others in the purpose that it served.

The first group, I believe, represents the first step in fashioning the mysterious stone circles, or "fossil doughnuts." A stone of approximately the form required had a deep cavity picked in the two opposite sides. At a certain stage a large drill was then brought into play alternately on either side, eventually completing the characteristic, countersunk, central orifice for which the "doughnuts" are known. All the steps of this process are represented in our collections, including specimens that have been broken at various stages.

The second class of these pitted stones displays the pits upon one side only of the stone, the opposite side being very smooth, sometimes highly polished as though it had been palmed for years. Moreover, the bottom of the cavity is smooth, often approaching the polished state. This class of stone is ordinarily found within the hut circles, or in the great manufacturing centers where the beads were produced and where drill points were of most common occurrence. I believe it to be at least possible that these stones were used as drill heads, whose purpose, when they were placed upon the top of the drill-shaft, was to give efficiency in drilling and fire-making by their added weight. They would also act as a protection for the left hand during the long, trying hours of working the drill.

The third class of pitted stones that I believe I have segregated, are those that are marked with irregular pits, grooves, and jagged slashes. These I have never found in any other locality than the immediate vicinity of accumulated flint chips. This coincidence led me time and again to pick up a near-by flint flake and fit it to the scar upon the boulder, in the majority of cases with complete success. I believe that these irregularly fitted stones may safely be classed as anvils that were employed in the flintworkers' craft.

The hammers that were used in flint-working were in no case

grooved or hafted. They were simply fragments of very tough stone, of a size suitable for holding in the hand, and were used until too small to be efficient.

Basketry had undoubtedly been highly developed by this people at a time long antedating their arrival in this region, and it continued to be one of the highest expressions of their arts to the very last, remarkable examples from the Mission period remaining to us.

From the open village sites of today no basket work may be expected, as time has relentlessly eliminated all such fragile objects. We do, however, occasionally recover crumbling specimens from the rock shelters and grottos of the mountain sides, where adequate protection has been furnished. These specimens show that a high degree of skill was employed in their creation. The smaller baskets are sometimes found to be lined with asphaltum, undoubtedly in order to make them impervious to moisture and possibly also to insects.

The method of applying the asphaltum to the baskets is interesting. Within the completed basket were placed several lumps of asphaltum. Afterwards a double handful of heated pebbles was thrown in, which melted the pitch to a fluid state. This was now swirled round and round until every part of the interior was uniformly coated, the weight of the revolving stones serving to press the liquid asphalt into the interstices of the weave. The basket was now inverted, leaving the cluster of pitch-coated pebbles for the edification of the inquisitive archæologist of another era.

Flint drills of quite uniform contour, but widely divergent in size, are of common occurrence. This diversity is easily accounted for, when we consider the demands that were made upon this particular form of implement. Almost innumerable perforations had to be drilled along the edges of the small segments of plank that were lashed into form for the seagoing boats. Pipes, tubes and long beads of stone had to be drilled longitudinally, a most painstaking labor. Broken vessels were sometimes repaired by drilling holes along the edges and then lashing the pieces together with thongs. There were the stone circles to drill, and above all the countless thousands of small beads and bangles to be perforated. Surely the masters of the drill were seldom idle.

The exact form of the drill mechanism is to some extent a matter of conjecture. A few rib-bone bows and the above-described palm-stones suggest that the bow-drill was familiar to the Canaliño workmen. On the other hand, the presence of spindle-whorls point with almost equal certainty to the "pump-drill" mechanism. Aside from this evidence, there is nothing to indicate the methods employed. We have many examples of the triangular, flint drill points, some with asphaltum adhering to their base, to indicate clearly that they had been seated in a shaft or spindle.

The smaller drills, probably employed in the making of fine wampum, are scarcely larger than a fine sewing needle, while those used in the creation of the "fossil doughnuts" are, in some instances, as much as nine inches long and two inches in diameter. There is a great range of size between these two. A splendid variety is the pipe drill, long, slender, and perfectly formed, sectionally triangular, and similar to a modern saw file in size and contour. These are usually five inches in length and three-eighths of an inch in diameter at the thickest part.

In the construction of the huts, an implement was employed, specimens of which we are not entirely sure of possessing in our collections. In lashing the bundles of tules to the walls of the huts to form the thatch, a long wooden needle is employed by modern representatives of the race, one individual standing outside and the other inside. The two pass the instrument shuttlewise back and forth. I, of course, found no wooden implements, but did on occasions find long whalebone utensils with an eye in one end and closely approximating in form the wooden instruments we have seen; we have tentatively assumed that these bone implements are exalted types of the thatching needle. These objects are about twenty-one inches in length and two and one-half inches wide at the base. The eye is three-quarters of an inch in diameter.

Wrought pieces of fireproof stone, such as serpentine, staurotide and steatite, are sometimes found with flattened bases and more or less symmetrical contour and frequently ornamented with cross-hatch designs. A uniform character, which fixes their use unmistakably, is a deep, straight, narrow groove, or occasionally two grooves, that cross the stones transversely. The

light shafts of arrows are prone to warp upon exposure to the elements, making the weapon valueless until the fault is corrected. The Canaliño heated the grooved stones, and after moistening the arrow shaft, drew it through the channels until it became true again.

Many other objects of minor importance are present in these ancient centers, each undoubtedly having fulfilled some purpose. but as their uses are now uncertain, I have thought it best to omit conjectures regarding them. We will pass to the more intimate domestic implements and to the weapons, between which it is difficult at times to determine the line of demarcation.

Pointed and polished implements, cut from the more massive bones of mammals, are found in profusion. The smaller and shorter of these, frequently fitted with a rounded lump of asphaltum in lieu of a handle, unquestionably served as awls or perforators. From these, there is a gradual increase in size and a modification of form, so slight as to make the change almost imperceptible, but in any set we realize that there are some that certainly did not fulfill the mission of awls. In many specimens, we recognize characteristics that could belong only to hair ornaments. Others, with powerful pointed and sharpened blades and bases that might well serve for handles, strongly suggest side-arms. Perhaps, in this form, they fulfilled the double purpose of hair ornament and dirk, and we are reminded of Ferelo's statement:

“ . . . and they wear in their hair, daggers of stone, bone and wood.”

In one class of these larger bone artifacts, one end of the limb bone of a mammal has been worked into the form of a decorated funnel, the remaining thick part of the bone being shaped into a blade-like form. The mouth of the funnel is lined with asphaltum, and in this substance may frequently be traced the imprint of feather quills. These objects, it is plain, were once pom-poms for insertion in the hair.

Flattened stones, notched on the side and on the end, that would have served well as sinkers, give hints of nets and weirs used in the capture and retention of sea food, but of the nets themselves we know nothing.

In the matter of fishing with a line, we are in a much more

favorable position. Many fishhooks have been gleaned from the refuse heaps and cemeteries; these fall easily into two distinct classes. The first is a true hook, but the second, while it fulfills all the requirements of a hook, is in reality only a barb that is attached to a line or shank at an acute angle.

The hook form is cut from either a massive bone or a sea shell, by far the greater number being from shell. The hook is nearly round in contour with an incurved point and no barb. The shank stands at a tangent from the outer curve of the hook proper, and is encircled with a groove for the attachment of the line. In a few instances, the grooved shoulder is replaced by notches for wrapping attachments. In either form, asphaltum cement was used to insure security.

It will probably at once occur to the reader that this arrangement makes no provision for hooking the fish, and I do not believe that it was ever intended to do so. It appears plain that this hook was only intended to hold bait and to be swallowed by the fish, which would retain it until landed in the boat. In corroboration of this theory, we find many hooks in the heaps of fish offal in the refuse piles. These hooks vary considerably in size, the larger being one and one-quarter inches in diameter, while the smallest found measured only three-eighths of an inch.

The barb, on the other hand, was primarily intended to hook the fish, and was probably used for fish of entirely different habits which could not be taken with the true hook. The barb takes many forms, slender, massive, long, short, curved, much curved, single-pointed and double pointed. There were, however, several features to which all conformed. They were all cut from the firmest portions of the limb bones of mammals. They were all neatly finished and keenly pointed, and all have been attached to a line or shank by being wrapped and tarred. Properly baited, this arrangement would prove very effective today.

These people were efficiently equipped to take any of the ordinary fishes of our coast, but a mystery remains as to the methods employed to take the wary and powerful swordfish and the equally elusive porpoise, quantities of whose remains are to be found in the refuse heaps. We might imagine that the Canaliño had resorted to methods similar to those in use today, namely,

by employing the harpoon, but I have failed to find a single specimen of this weapon.

The making of the fishhooks and the various other implements of bone and shell, entailed a great deal of patient toil. There could be no chipping or bringing to form by using the hammer, as in the case of stone artifacts. In making the true fishhook, a hole was drilled in the shell or bone blank as a preliminary move. After that, the method of shaping any object of shell or bone was the same. A slab of very abrasive sandstone was secured and upon this the object in hand was rubbed to shape. Small slender bits of the same abrasive material served in place of files to give the finishing touches. The "files" and large grinding slabs are to be found in nearly every rancheria site, the latter, through long usage, having their surfaces furrowed by many grooves.

When viewing a collection of flint artifacts, the casual observer often considers them all "arrowheads," or perhaps calls some of the larger objects "spears." As a matter of fact, several classes of flint implements and weapons were in use in every barbarian society. Each of these implements was produced by much the same methods and of the same materials as all the others. In the case of the Canaliño, these materials were confined largely to the products from cherty nodules, deposits of chalcedony and a few introduced flakes of black obsidian.

A prominent source of supply of this flinty material appears to have been near the present settlement of Alcatraz. Here is to be found, near tide level, a liberal outcropping of flint nodules. The Canaliño, in times past, made full use of this deposit, as is attested by the vast accumulation of chips and cores on the crest of the cliff above. It is evident that the spalling of nodules brought up from below had here been carried on vigorously. Few pieces are found upon this factory site that could have been used to advantage in the creation of implements. It is clear that the most suitable were all carried away to the homes of the artisans who had produced them.

These blanks or unfashioned flakes that the artisan carried away, were of several forms, each adapted to a different use. From the outside of the nodule, the artisan secured greatly curved chips, much thicker at one end than at the other. By slightly retouching the inner edge of the thicker end, a very serviceable

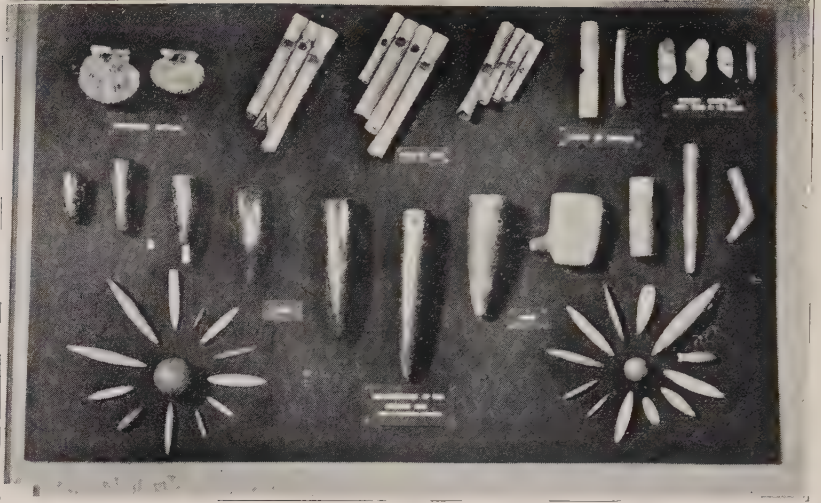


Canaliño Necklaces



Canaliño Necklaces of Stone, Bone and Shell

PLATE 74



Appurtenances of the Medicine Man. Shell rattles, Pan-pipes, rock crystals, smoking pipes and "charm stones"



Whale Effigies from Canaliño Shrine. The largest measures eight and one-quarter inches long

tool for scraping and planing was secured, one that fitted the hand admirably. A few only of these "scrapers" are found among the Canaliño, but elsewhere, notably among the Indians of the plains, they are very common.

Other longer chips, thinner but showing a decided curve, were retouched to make serviceable knives for skinning and dressing game and fish, the curve in no manner affecting their utility, as accuracy was not essential in this case. The knives are of many sizes and shapes, owing partly to the original form of the flake and also because of the use to which they were to be put. For domestic use about the camp, these blades were seldom hafted, except in the case of the long triangular type, which was invariably set at right angles in a wooden or bone haft, giving a sickle-like instrument.

The knives used as weapons, the accompaniments of warriors, were more massive and much better formed, and were hafted with deer horn, much as are modern hunting knives. The fastening was of wrapped sinew and asphaltum.

Closely akin to the knives of the warriors were their spears, the only outstanding difference being that the handle of the knife has been discarded and a heavy shaft of wood substituted. The flint heads, while in nowise comparable in weight or length to the spear heads of the Hunting People, were of a far finer finish and perfection of line. The average length of these knife blades and spear heads was about four and one-half inches and the width of about one and one-fourth inches. There is a diversity in the forms represented that runs through leaf-shape, lanciform, conical and triangular, and the bases are forked, rounded or stemmed, no notched specimens having been found.

The advance indicated by the type of knives and spears just described is shared by the series of arrowheads that have been found accompanying this people, but one immediately wonders what they used for war points. The collection gives an impression of anything but fitness for aggressive war. Thin, delicate, beautifully made points are plentiful, but these weapons are primarily adapted for the taking of fish, birds and the smaller mammals. A small percentage only are of a size capable of stopping the larger mammals, including man. That they were occasionally employed for this purpose can not be doubted, for a few such points have been found imbedded in

human bones. Nevertheless, the fact remains that these fragile points were not intended, primarily, as weapons against man. In the grave at Tecolote, from which were taken seventeen warriors who had died in battle, not one arrowhead was found. Spearheads in abundance were found imbedded in the bones, but the smaller missile weapons appear not to have been employed in the *mêlée*.

The arrowheads of this period reached a perfection of finish and standardization unsurpassed by any race or age. The greater part of them conform to two distinct patterns. One of these is elongate-triangular with a forked base. The other is the elongate, leaf-shaped variety with rounded base. There is no trace of notches or stem in either variety. The few heavier points present are merely wider and thicker examples of the two above described types. An average size for the majority of these specimens would be two inches in length and five-eighths of an inch wide, and less than one-eighth of an inch thick. A few heavier points average about the same in length, but have a width of about one inch and are about three-eighths of an inch thick.

Many of these points show the asphaltum cement upon the base and the imprint of the cord by which they were attached to the shaft. In a few instances, this was found to have been painted red. A very few aberrant forms were also found, so divergent from the accepted types as to make their use a matter of conjecture. One of these was cruciform, having right-angled arms projecting from near the center of the leaf-shaped head. Other forms are practically beyond the powers of description.

As in all remains of forgotten peoples, there are present many objects whose use may only be guessed at. Among these are several well-made stone balls, ranging in diameter from two to three and three-fourths inches. There can be little doubt that these were used in games. There is a tradition that, in one of the games played upon the dance floor, two sides tried to force a football across a certain goal.

There are two classes of objects, each well known to investigators and each the subject of more or less controversy as to their use in the time of the Canaliño. The first of these is a series of small, oval beach boulders, each with a groove cut around the circumference. In the majority of cases, the groove

follows the longer circumference, but in some cases it is the smaller circumference that is encircled. These stones were at first classified as "sinker." I have sought in vain for any proof that this was their function; in fact there are certain features connected with them that may throw doubt on this widely accepted classification. I will first call attention to the localities where these objects are found. The name "sinker" carries with it the inference that these objects were put to some use in the channel. We might, therefore, suppose that they would ordinarily be found upon the beach, or in low-lying portions of village sites, where the seafaring activities would naturally center. I have searched such localities thoroughly without finding one specimen. On the other hand, dozens of them have been found in the higher and more distant sections of the site, a few in the refuse heaps and hut circles, but the majority in the cemeteries.

The manner of their disposal in the burials is also significant. They are always found beside the skeleton of a man in the prime of life, and invariably in pairs. I use the word pairs advisedly; the two stones found together in a grave are invariably very closely matched in size and weight. This fact, alone, appears to me to carry considerable weight. The range in size in different pairs is considerable; they vary in diameter from two and one-half inches to five and one-half inches, and in weight from two pounds to twelve pounds to the pair.

I am by no means convinced that these grooved stones were used as sinkers. They suggest strongly the "bolas" which, in Argentina, are connected by thongs and thrown to entangle and trip animals of the chase. The great weight of some of the objects in question is, however, a strong argument against the theory that they were used in this way. Nevertheless, it is evident that some classification beside that of "sinker" is required for objects that were regarded with enough veneration to be placed only in the graves of prominent warriors. One more comment in this connection. We find that, in nearly every other part of the United States, prehistoric man has had a variety of grooved implements; in the Santa Barbara region, on the other hand, only this one form of artifact is found with a groove for attachments.

Another class of objects whose former use is unknown are

the stone circles known in common parlance as "fossil doughnuts." The preliminary stages of the shaping of these objects has been touched upon in a previous page. The purpose which they served is much harder to define. They were fashioned of a variety of materials, including limestone, sandstone, serpentine and staurotide. Their size is fairly uniform; they average about four inches in diameter and about two and one-half inches in thickness. The orifice, at the smallest part, is almost invariably between three-fourths of an inch and one inch in diameter, widening rapidly from this to the surface on either side. The variation from the standard form is considerable in some instances, some being thin and others having an irregular contour. There is also a wide difference in the degree of finish, some showing the gritty surface of the sandstone, others being brought to a high state of polish. They are usually found in the graves of men, but they are occasionally to be found in various situations. To these objects, as to the "bolas," the name of "sinkers" has been carelessly applied but, I believe, with much less reason. While they are of fairly common occurrence upon the mainland, they are found in far greater abundance and in greater variety of form upon the Channel Islands. I have, therefore, made my comments on them in the chapter devoted to the exploration of the islands.

The foregoing gives an outline of the utensils commonly employed about the villages of the Canaliño, based upon material that has been preserved for our study. Of the articles constructed of more perishable materials, we can give only a fragmentary account. Among these are the great seagoing canoes that are known to have existed in large numbers. Upon the mainland I found only slight traces of these, from which I could gather only the vaguest details of their construction. The same may be said of all the wooden hafting for weapons, etc. From this brief resumé of the utensils that were in general use by the people of the third cultural epoch, we may reconstruct a picture of their activities.

We will now make an effort to bring these Indians a little nearer to us, through a brief description of their more personal belongings. The word Indian usually brings to mind a being more or less completely decorated with brilliant paint, and this conception is not far amiss, for probably no class of humanity



Arrowheads of the Canaliño



Spearheads of the Canaliño



Grooved Stone Balls ("Bolas"). Use conjectural

was ever so fond of concealing their natural appearance beneath a coat of pigment as the native Americans. This statement applies to the people who have inhabited the Santa Barbara valley, from the first cultural stage to the close of the third. The securing of the raw materials for these pigments, their preparation, preservation and application made a considerable demand upon the time of the inhabitants. So far as my investigations went, five distinct colors were employed by the Canaliño. These were black, white, red, purplish-red, and yellow. The last three were earthy materials, obtained by burning the raw minerals and molding the residue with some material that would cause it to retain its shape in the conical lumps in which we find it. The black pigment was a less stable material, whose chief constituent, apparently, was soot mixed with heavy fat. This material is always found in a container, evidently being too unstable to mold. The white paint proved to be lumps of diatomaceous earth, from the western part of the country, which had been carved into a definite form but not otherwise altered by treatment.

From the first exploration of the cemeteries of this region, comments were made upon the occurrence of numerous, small, uniformly shaped lumps of asphaltum, which from their size and form were called "cloves." There appears to have been a very wide interest taken in these small objects, but it appears equally clear that no one was quite certain as to the real purpose that they had served. Mr. S. S. Haldeman in his article on "Beads," in the report of the U. S. Geographical Surveys, approached very close to a solution, but no one seems to have followed up his suggestion. He says:

"Cones of brown asphaltum, roughly molded as if by hand, about one-half inch long, the base about one-fourth inch in diameter, the truncate apex one-eighth inch or more with a small hole down the axis, but not reaching the base. . . . They seem to belong to a class of pendants used on fringes, and being probably molded upon the string which was to suspend them, the decay of this would leave an opening. Abundant in the excavations of La Patara and Dos Pueblos, but an uncommon form of ornament. Some of these clove-shaped asphalt ornaments were found by Dr. Yarrow's party (1875) in the holes of which were small pieces of what were supposed to be dried grass."

In a footnote he says:

“These singular ornaments (?) have also been collected from graves on the island of San Miguel by Mr. Bowers.”

Among the first problems to which I gave detailed study was this of the “cloves.” I found that in every case they were present only in the graves of young females. The next discovery was that, when they were present, there were always great numbers of them. Still later, I found that they always occurred in thick bands that encircled the two femur bones of the flexed skeleton, and that a film of disintegrated vegetable fiber lay between this band of “cloves” and the waist of the skeleton. Finally, I split several of the cloves and subjected them to scrutiny under a reading glass. This revealed, in each, the tip of a grass blade, bent sharply to one side. At last, I could put together a perfectly clear story of the use to which these little objects had been put.

While a large part of the population went about in absolute or approximate nudity during the warmer months of the year, it was the custom for the females, from the age of puberty to the late twenties, to deck themselves in a peculiar form of skirt or apron. The bases of long, tough grass blades, which reached to the knees in front and behind, were woven into a girdle. It is not certain that the garment extended around the thighs on the sides. If it had, the effect would have been somewhat similar to that of the grass skirt of the hula dancer. I am of the opinion that it only draped the front and rear, leaving the thighs exposed. To keep the garment in place, a unique system of skirt weighting was evolved. Around the lower tip of each blade of grass was pinched a small thimble of warm asphaltum, which was patted upon the extremity to bend the tip of the blade and to hold the weight in place.

The purpose served by these cloves is clear, but we do not understand all of the customs that regulated their use, for while the garment was very plainly restricted to the use of young women, it was not in universal use throughout the valley. In some villages every young woman seems to have worn this apron. In an adjoining village only a very few young women had them. In still others, not a clove was to be found. The custom that dictated the wearing of this primitive skirt must have varied to a

considerable extent in the different villages or else, in some, the garments were of such a perishable nature that no trace now remains.

Decorations for the hair played a conspicuous part among the personal adornments of this people. The sexes appear each to have made use of the rather extensive series of bodkin-like bone ornaments mentioned in previous pages. These were made of many varieties of materials and varied greatly in form and decorations. An elongate bone hairpin was decked either with feathers or a bright sea shell, or even a rock crystal. Others had no attachments but were intricately carved with band or ring designs. Still others, spatulate in form, made from the mandibles of porpoises, had complicated designs composed of pit marks.

One very distinctive hair decoration was in use by the women. Numbers of the shells of the Giant Limpet, *Megathura crenulata*, were employed in overlapping formation, like the plates of scale armor, the hair of the wearer being woven through the natural orifice and around the shell to form a decorative cap, which extended downward in a skirt-like appendage that approximated a cape. The result must have been a very striking head dress. In its early form, it certainly was a cumbersome one.

This type of hair decoration presents the single clear story of evolution in the art of the Canaliño after their arrival here. It is very apparent that the chief appeal, in this form of decoration, was the large, oval, central orifice in the apex of the shell, through which a strand of hair could be drawn and then woven over the edge. In the early days of the Canaliño in this region, the shell was used in its natural form, about seven to twelve being used by each individual. In the course of time, some genius saw the advantage to be derived from grinding away a portion from each end of the shell. This would admit a great many more orifices to the design and a consequent refinement of the meshes of the braid. In the middle period of this people's occupancy, we find that in nearly every coiffure the surface of the shells had been reduced fully one-half by grinding away the ends. At this stage, from fifteen to twenty-five shells were used on each head of hair. From this time on, the advanced ideas gained rapidly and more and more of the shell was ground away, until finally we find great numbers used upon each head, there being nothing left of the shell now, except the narrow rim that surrounded the

orifice. As many as eighty to a hundred of these white ellipses are of common occurrence in one of these later designs. At this time, they also show a trend towards individuality, taking on little touches of refinement and decoration by which, in some instances, we may tell infallibly to which village they owe their origin.

As is so frequently the case when an art has undergone a rapid change, we find that this tendency to refine was carried to an extreme. In a number of examples, from the last days of the Canaliño culture, I found clusters of these ornaments ground to such a degree of attenuation that their usefulness must have been greatly curtailed.

While the subject of hair dress is before us, I will mention a form which appears to be connected with the ceremonial phase of the Indians' lives. I had, at rare intervals, found the beaks of swordfish near the heads of male skeletons. Finally, I had the good fortune to find one in place, protruding above and forward from the face of the skeleton; above and below the skull lay a thick sheet of overlapping triangular ornaments, shaped from the iridescent inner layer of abalone shell. Each of these pieces was pierced with one or more small holes, as though for attachment to some fabric or dressed skin. It was the most convincing picture imaginable. The body that had lain here had been dressed to symbolize the swordfish, the scaly sides of the head and neck and the formidable sword being very suggestive. I am inclined to believe that this individual had, in life, danced the character of the swordfish, and, at death, had been put away in his ceremonial paraphernalia. Traditions persist among the surviving remnants of kindred people, that the Canaliño held this combative fish in great veneration, because it drove ashore or killed the whales that contributed so largely to the food supply of this people. It is probable that, in our dancer, we have an individual who had done homage to the benefactor of his people.

Ear ornaments were a common form of personal decoration, and perhaps led all others in ornateness and perfection of finish. We know that the ears were pierced, from having in a few instances found in place the large, beautiful, abalone-shell fish hooks which had been used for the suspension of other decorations. These pendants quite often take the form of disks cut from the abalone shell, the iridescent mother-of-pearl being frequently

highly engraved, in the form of concentric rings and dotted designs.

Taking up the series of objects that were used as gorgets or neck bangles, we enter a field that is almost limitless; pages would be required to describe, in detail, the varied and interesting types that come to light. Of every material that would appeal to a barbaric fancy and of shapes that are limited only by the range of natural forms plus the modifications suggested to primitive minds, this class of artifacts furnishes an index to the varied tastes of the people we are considering.

The materials most frequently used in this form of decoration were serpentine, staurotide, abalone shell and clam shells. The forms found most frequently are of flattened, oval-outlined objects, pierced for suspension, and decorated more or less with line or dot designs. A series of elongate stone tubes should, I believe, be assigned to this class of ornaments, rather than to the class of beads to which they are sometimes referred. One of these tubes is worthy of especial mention, combining as it does an unusual variety of material and a high degree of skill in its creation. It is of dense, brick-red, crystalline stone, very closely resembling catlinite. Whatever the substance is, it is not known by the writer to occur anywhere in this western region. The tube is long and slender, and has been brought to a high degree of finish, being eight and one-eighth inches long, by eleven-sixteenths of an inch in diameter. It is drilled the entire length with a bore that does not exceed three-sixteenths of an inch in any place. The technique displayed in putting through this slender, straight bore shows a high degree of skill in the artisan.

Another series of objects have also been placed tentatively in the class of neck pendants. These are elongate-conical in contour, somewhat resembling the pipes of this period, but with the bore not reaching to the smaller end. This gives them a vase form, with a flattened bottom and a thin rim. The rim is pierced on opposite sides with small holes, evidently for suspension, the holes showing much wear. In some instances, a decorative band encircles the object near the rim, being either engraved or inlaid. Artifacts of this class that were found upon the mainland, in every case that came to my attention, were made from either serpentine or staurotide.

With the exception of arrowheads, there is probably no form

of primitive man's artifacts that are so well known to the public as beads. This form of decoration, essentially the same in every detail, is probably as popular today as it was in the time of the Canaliño, hence they appear far less strange to us than do objects that have become obsolete. Moreover, as a form of personal decoration, they are nearly as old as man himself. Throughout the long period of their history there has been a striking similarity in the designs produced. If we bear in mind this standardization of the bead, we will be better able to appreciate the accomplishments of the Canaliño along this line.

We find that, previous to contact with the whites and unacquainted with the models from which we have freely borrowed, this people had produced practically every shape and size of bead with which we are acquainted. When we consider that they were entirely ignorant of the use of metals, pottery and glass, the materials upon which the modern man largely depends for the production of beads, the diversity in materials and form used by the Canaliño appears astonishing.

Bones were used to a large extent, long tubes being fashioned from the wing bones of birds and the limb bones of mammals; these were often highly embellished, either by engraving or by inlay. Short, cylindrical sections of bone were rounded and strung as true beads. It is not uncommon to find the toe bones of foxes, pierced at one end and strung with alternating wampum to form a necklace. The talons of eagles, bears and mountain lions are also frequently used, as are the teeth of the larger carnivores. A prodigious number of beads, widely diverse in type, were fashioned from shells. The small gastropods were taken in large numbers, pierced and strung into pleasing, symmetrical chains, larger shells being sometimes introduced at intervals to give an effect of pendants. Iridescent bits of mother-of-pearl were ground to circular form, pierced and strung into extremely beautiful forms.

Of all the shell products, however, the small disc-shaped wampum was the most numerous and involved the greatest labor in its production. I succeeded in tracing every step of its production, and in becoming familiar with every detail and with every tool employed. The Indians collected great numbers of the shells of *Olivella biplicata* and brought them to the village, to furnish material for the busy wampum-makers. These shells were col-

lected in such numbers that, upon the death of a workman, he was buried in a mass of them that he had not had time to use. I have found as many as a bushel in one grave.

The first move, after bringing the shells to camp, was to split them longitudinally by holding them in a pitted anvil and driving a sharpened flint through them. The thicker upper half was preserved, the lower half being discarded. This detail of the process was usually carried on on a large scale; sometimes thousands of these roughly halved shells are found in one heap. Later, each of these halves, by means of a small stone hammer and anvil, was carefully chipped, one at a time, to a rough disc form. The next process was to lay them upon a slab of shale and apply the pump-drill, tipped with an attenuated flint point, the perforation thus produced in many instances being so small as to admit nothing larger than a fine sewing needle. Enough having been drilled to fill the required length of the string, they were held rigidly and moved briskly back and forth along the grooves of the abrading-stone, until they were of uniform size and roundness. The whole process was very tedious and exacting.

In an effort to gauge the amount of work represented, I took a three-ply necklace, twenty-one inches long, composed of well-worked wampum of about one-eighth of an inch in diameter. This was interspersed at intervals with small, spherical, stauroid beads, but it is only the wampum that interests us at this time. Endeavoring to follow faithfully the methods of the Indian, I succeeded in producing pieces, in the average time of thirty minutes from the time I picked up the entire shell. Granting that the Indian maid who produced the necklace was more proficient and consumed only half the time that I had taken, we still have a period of eighty-seven ten-hour days devoted to the creation of this necklace of thirty-five hundred pieces. This will perhaps give some idea of the energy that was expended in this one industry. A large proportion of the population was decorated with this form of ornamentation, the fashions of the sexes differing in one respect only, namely that the wampum found with the males is of much larger diameter than that found with the females.

It would be a most interesting study to trace the wampum that originated upon the shores of the Santa Barbara Channel to the extremity of its range. It is well known that it was one

of the commonest mediums of barter and exchange in prehistoric times. It is to be met with, in considerable abundance, at a distance from the coast; it is found in diminished quantities in the district of the Rockies and upon the Plains, and there have even been occurrences of it in the Ohio Valley. If other evidence was needed to convince us of the existence of a far-reaching system of exchange in pre-Columbian times, we have only to turn to the other side of the ledger and to note the presence, within the confines of the Canaliño region, of such objects of extraneous origin as obsidian spearheads, steatite ollas, and specimens of catlinite.

A large series of stone beads were found during the exploration of the sites under consideration. These run through the entire list of possibilities in variation of form, the cylindrical and spherical being the most in evidence. Nearly all are drilled longitudinally, a few transversely and a very few show both forms of perforation. An interesting feature of the drilling is that, at times, it reached a diameter that did not meet with the artisan's approval. In such instances the bore has been reduced by inserting wampum beads with a much smaller perforation, thus effectively applying the principle of "bushing" that is in use in modern mechanics.

The varied materials employed in the making of these beads are of great interest, consisting as they do, in nearly every instance, of stone foreign to this immediate vicinity. Slate, serpentine, staurotide, catlinite, calcite and even amethyst are found, all probably representing the Canaliño's notion of preciousness. Attached to the necklaces are frequently found objects that may hardly be termed beads. They are in the form of bangles, or pendants, and often express, in their form and finish, the highest type of the art of this culture. These objects are generally pierced at one end for attachment; in a few instances, they are grooved for tying on, or they may have asphaltum cement attachments.

The last class of personal adornments to which I will call attention is the series of artifacts to which I have given the name "spangles." Occurring in great numbers, they have taken on every fantastic form that the barbaric mind could conjure up. Being almost invariably cut from the iridescent inner surface of sea shells, which has retained its luster to the present day, these

objects are very decorative. A large part of them are of disc form that have through various degrees of embellishment, nearly lost their original character. Some are circular; others, through deep notching of the circumference, give the impression of a sunburst; still others are bilobate. A large percentage are beyond the power of the pen to describe. In one particular, these "spangles" are fairly uniform; they are usually pierced with two or more small orifices, although these holes are seldom near the center and in nowise suggest beads or pendants. They were apparently meant to sew upon a garment or head dress as decorations, and would certainly have produced a striking effect.

The appurtenances of the medicine men differed widely from the utensils employed in everyday walks of life. The mission of the shaman appears to have been very similar to that of the priesthood in general throughout the ages, a strange blending of spiritual guidance with a self interest that made imperative the use of subterfuge, mystery and deception, in the maintenance of their office.

These functionaries were in possession of beautifully symbolic ritualistic forms, one of which called for the use of a bowl, cut from the vertebra of a whale, in which was reverently collected the pollen of flowers, a symbol of plenty and fertility. At regular periods, the shaman, muttering invocations to Chupu, the Indians' chief god, sprinkled the sacred meal upon whatever the people most earnestly desired should be productive, the sea, a hunting or fishing party, wild fruits and live oaks, and young married women.

Ritualistic dances were either performed by or led by a shaman who clicked castanets, formed of pecten shells, cemented together with asphaltum and enclosing a few olivella shells. The shaman appears also to have been a musician. For years there have, from time to time, been found in the old rancheria sites, objects of bone that have been called "whistles"; these were hollow lengths of from two to ten inches, with a hole cut in one side, this orifice being modified with a lump of asphaltum. For a long time no evidence was found that threw any light on these objects, except that some showed plainly the effect of having been tied to some object. Finally, in the cemetery upon the crest of El Capitán, I came upon the grave of a shaman. This was intact, the occupant sitting nearly upright, the bones of the hands raised

nearly to the face and grasping four "whistles" of varying lengths and sizes, ranged serially side by side, the marks of the thread that had once lashed them together being still visible.

The mystery of the "whistles" was solved. Our Canaliño had been in possession of true pan-pipes, the precursor of the pipe organ. I believe that I am correct in stating that this is the first instance where these pipes have been found thus associated in North America. Similar instruments are known to occur in two isolated and widely separated regions, namely a small cluster of South Sea islands and a small area in the interior of South America. Aside from these two instances, I think we must turn to the myths and sculptures of ancient Greece for our knowledge of this instrument.

Never failing accompaniments of every medicine man are large specimens of rock-crystal, sometimes many of them being present. These not infrequently still have asphalt attachments adhering that show by the imprints that they had at one time been fastened in wood. I believe that they were once attached to a wand or baton that was inseparable from the office of priest.

The tobacco pipes of the Canaliño were not intended to while away the idle moments. Filled with the potent wild tobacco of this region and lit with due formality by some leader in the community, they were solemnly passed around the assembled circle in the council compound; each member took a whiff or two in a ceremonial burning of incense to the powers that prevail. There were other solemn rites that called for the use of the pipe, at funerals for example. So far as my observations go, the pipes were left in charge of the shaman, who sometimes had several in his possession.

The form of these pipes is a familiar one along the Pacific seaboard, although entirely different from that of the Atlantic coast or the interior of the United States. They vary considerably in contour; they are usually elongate-conical but a few approach the cylindrical form, while others are more spindle-form. A wide range of sizes exists, the length running from two and one-half inches to nine inches, and the diameter from one inch to two inches. A few are decorated with engraving, cross-hatching being a favorite method employed. These implements had no stems, in the common use of the term, the small end of the bowl being usually held directly to the mouth. In a few

examples a short length of bone tube was cemented to the orifice in the smaller end of the bowl. This tube seldom projected more than one inch from the bowl, but would serve as a mouthpiece. One unique specimen is a flat polished slab, in the center of which is a tubular orifice that does not reach quite to the bottom. A small nipple, that protrudes from one edge of the slab, serves as a mouthpiece, being connected with the main orifice by a small lateral perforation. The majority of pipes found were of slate, serpentine, staurotide or steatite. In rare cases, they were of sandstone.

By far the most common objects found that were connected with the cult of the shaman, were the so-called "charm stones." These relics vary greatly in form, and also in the nature of the stone of which they are formed. They are approximately cigar-shaped and are cut from stone that is not native to this region. This, however, is but a brief summing up of a part of their characteristics. They belong to the class of objects, found in adjoining territory, that have been called "plummets" by many writers. In no case did I find here a specimen with the characteristic knob that is so common in some localities not far distant from our valley; it is this knob that is largely responsible for the caption "plummet."

In probably ninety per cent of our charm-stones, the general contour is that of an elongate spindle, bulging at the center and pointed at each end, often with the imprint of asphalt wrapping about the largest diameter. The proportion of diameter to length varies considerably in the series, some being quite thick and short, others long and slim. To make this more clear I will give the dimensions of four specimens:

No. 1. Thirteen and one-half inches long and one and one-eighth inches in diameter.

No. 2. Nine and one-fourth inches long and two and one-fourth inches in diameter.

No. 3. Seven and three-eighths inches long and three-fourths inch in diameter.

No. 4. One and seven-eighths inches long and three-sixteenths inch in diameter.

In a few instances, there appears to have been an effort to indicate an animal form in these objects. There is always present the highest degree of finish that is possible with the quality of

stone employed. About ten per cent of the stones are of an entirely different character from those just enumerated, some being apparent efforts towards the creation of realistic effigies of beasts and fishes, others again being impossible of description. A few of the latter are perforated.

Living Indians are very reticent in regard to these strange objects. We are given to understand, however, that these charm-stones were once endowed with mischievous life, and were hostile to man, if allowed to burrow undisturbed. Once overcome by the valorous medicine-man during the midnight quiet, they became beneficial, and, properly directed by the same shaman who had subdued them, were of untold value to individuals or groups. A properly dedicated charm-stone, when worn in battle by a warrior was a guarantee of immunity from wounds. If a warrior were in serious danger, he had only to bite the charm-stone amulet and he would become invisible to his astonished enemies.

I once found, in an undisturbed section of a long unused, sacred compound, two clusters of these highly prized objects, each containing ten stones. These were arranged in a radiating sunburst effect about a central, circular stone that rested in a small cup-like boulder. There can be little doubt that great importance had been attached to this arrangement, but its meaning can only be conjectured.

Within the same compound was found another and much rarer object; in fact, I doubt if its counterpart exists in America. After diligent search, I have failed to find any published record of one of these artifacts that has its origin in the New World, although similar relics are said sometimes to occur among the prehistoric remains of southeastern Asia.

This object, which for want of a better name I have called a "gambling top," is a conical mass of translucent, honey-colored jade-like stone, three and one-half inches long, and having a diameter at the base of two and one-fourth inches. The base is symmetrically shaped, the center being strongly convex and bounded by a circular groove. The apex is in the form of a round, smooth, rather pointed nipple. The sides of the cone are cut into six longitudinal flutings that extend from the base to the nipple. Of these flutings, two are plain and slightly more pronounced than the others; two of the remaining flutings are cut into three knobs each, one into four knobs, and the other into five knobs.

There seems little doubt that this object was spun upon its apex and that the number which appeared, when the top came to rest, decided some important problem. Whether this was a device for gambling, in the common use of the term, or whether it was used in making profound auguries, is difficult to determine.

I have learned from Klah, chief medicine man of the Navajos, that he is in possession of an almost exact replica of this object. He states, simply and reverently, that it is the fragment of a star which has been in the possession of the Navajo medicine-men since time immemorial. According to legend, it was sent to them from heaven by the gods, and is potent with all celestial qualities for healing mind and body.

Attempts to reproduce animal forms apparently were of rare occurrence among the Canaliño craftsmen. Occasionally crude effigies are found, usually with associations which indicate that they had a ritualistic significance. Two figures of whales are illustrated which fall under this classification.

Besides type specimens of artifacts, whose functions are readily understood, objects are frequently found whose meaning we can not understand. These, in not a few instances, defy adequate description. Such objects, studied in connection with those of a high order of finish, whose uses are more easily comprehended, are strongly indicative of an art that was advancing and seeking new avenues of expression.

## APPENDIX

### TECHNICALITIES

THE scope of the present report, intended primarily for the public at large, will hardly warrant the insertion of many of the technical details necessary in the study of anthropology. The writer has therefore felt it necessary, in connection with the foregoing discussion of the reaction of a unique primitive people to their environment, to add a chapter dealing with comparative anatomy and especially with craniology.

It has been frequently stated in previous chapters that, throughout the region under discussion, a rigid system of formal interment of the dead prevailed, in direct contrast to the practice of cremation which was almost universal in the surrounding region. As a result, the Canaliño crania are probably much better represented in the cabinets of amateur collectors than those of any other American race. At irregular intervals, too, collections of crania have been made in this region by various scientific bodies, and it is in an effort to supplement the information already preserved that the following tables are included in this work.

The detailed measurements of only two hundred and forty-four subjects are given in the following chapters, this number being considered more than a mere approximation of the mean indices in each class.

In this connection, attention is called to the limited number of subjects given for the Oak Grove People. The remains of this race are found in great abundance, but of such fragmentary nature and so imbedded in a semi-fossiliferous state in a stony matrix, that their recovery and restoration are extremely difficult, hence few have as yet been brought to a condition where detailed study is possible.

The system of measurement and resultant indices follow closely the code framed by Dr. H. H. Wilder, itself based upon the mode of procedure adopted by the International Congress

of Anthropologists held at Monaco in 1906, and later amplified by the same body at Geneva in 1912.

Of the cranial measurements advocated by Wilder, forty that appeared to the writer to be of outstanding significance were employed, and the leading indices compiled therefrom. Tables of the condensed results follow for each of the classes that have been distinguished during the process of this study.

## ANTHROPOMETRICAL NOTATIONS, CRANIA OF "OAK GROVE PEOPLE"

Catalogue No.	Sex	Age of subject	Aur-brgt hght	Lngt-brdt Index	Lngt-hght Index	Brdt-hght Index	Module	Facial Index	Nasal Index	Nasal apt Index	Orbital Index	Palatal Index	For.-Mag. Index	Alv-prof angle	Maximum circumf.	Nasn-opis Arc	Grtst frnt breadth	Condylar breadth	Nas-ion Chord	Grtst occ breadth
4	Male	35	113	73.3	73.0	99.6	147.8	87.0	53.1	74.6	94.6	68.8	91.6	73°	501	363	110	120	170	109
10	Male	30	118	74.7	73.0	97.8	147.0	90.7	50.0	65.8	97.0	p	p	72°	503	363	115	119	172	102
20	Male	?	111	73.0	66.8	91.6	144.6	p	p	p	92.1	p	p	p	533	375	123	p	173	117
26	Male	?	110	71.1	68.1	95.8	149.1	87.4	53.1	69.8	95.8	80.0	75.0	79°	520	362	114	112	173	105
30	Male	50	118	72.2	73.3	101.4	156.3	91.6	50.0	78.7	100.0	p	p	73°	522	385	116	p	181	108
31	Male	?	123	73.6	78.3	106.4	150.8	p	p	p	p	p	p	p	505	380	110	p	176	110
32	Male	50	114	76.6	70.6	92.2	151.8	84.8	51.4	71.2	92.3	79.1	73.9	80°	518	358	109	128	172	107



Cranium of Member of the "Oak Grove People"



Cranium of Member of the "Hunting People"



Cranium of Member of the "Canaliño"

## ANTHROPOMETRICAL NOTATIONS, CRANIA OF "HUNTING PEOPLE"

Catalogue No.	Sex	Age of subject	Height	Length-brdth Index	Length-height Index	Brdth-height Index	Module	Facial Index	Nasal Index	Nasal apt Index	Orbital Index	Palatal Index	For.-Mag. Index	Alv.-prof angle	Maximum circumf.	Nasn.-opls Arc	Grtst frnt breadth	Condylar breadth	Nas.-inion Chord	Grtst occ breadth
1	Male	50?	115	78.8	79.1	100.3	150.5	77.5	50.5	76.6	86.5	87.5	75.0	83°	507	373	116	125	166	100
5	Fem.	35	115	83.2	76.8	92.2	147.8	89.3	46.7	69.4	93.3	79.3	84.2	79°	497	342	108	128	164	110
13	Male	50	121	77.1	72.0	100.7	152.0	85.7	40.3	67.6	96.0	80.0	85.7	80°	510	364	114	122	167	117
14	Fem.	50	111	80.1	79.5	99.2	143.6	96.8	41.3	73.8	104.0	79.1	?	69°	490	347	113	121	159	104
15	Fem.	75	108	81.3	73.2	90.0	146.0	77.7	49.4	81.6	93.5	85.0	?	82°	500	350	117	120	156	116
18	Fem.	45	116	80.7	81.3	100.7	145.0	93.9	48.9	69.2	91.4	75.1	79.6	78°	480	348	107	?	157	108
19	Fem.	45	114	81.2	?	?	?	88.4	43.3	60.0	86.4	77.7	?	71°	480	347	109	122	153	108
21	Fem.	40	110	85.4	82.2	96.2	141.0	84.6	41.3	61.2	88.2	78.5	91.4	75°	468	336	105	118	149	108
22	Male	50	118	79.4	77.2	91.7	155.8	78.3	46.6	68.5	94.7	68.4	89.5	84°	525	370	120	?	170	126
24	Fem.	60	115	81.2	76.0	93.5	146.6	79.3	47.8	80.3	83.7	74.1	?	78°	490	367	106	112	156	105
27	Male	50	118	80.0	78.5	98.5	152.5	85.1	52.0	74.0	87.6	74.0	74.6	77°	515	361	115	110	171	107
28	Male	50	125	80.0	80.3	100.7	158.6	83.3	49.0	69.4	89.4	87.5	86.1	80°	528	396	123	137	172	104
29	Fem.	90	112	79.6	72.7	91.2	138.8	78.5	45.8	72.9	101.0	92.5	?	?	477	337	108	111	154	99
33	Male	45	124	76.3	80.2	105.0	155.6	94.4	40.1	68.1	96.2	68.0	91.4	78°	520	370	111	120	174	109
92	Male	45	113	84.1	81.7	97.2	150.6	80.7	44.1	66.1	87.1	84.7	88.8	80°	510	359	115	127	159	120
194	Fem.	40	109	82.8	75.7	91.4	145.6	88.4	42.0	72.4	94.7	70.6	88.5	80°	495	347	115	120	153	110
201	Fem.	35	109	84.2	78.7	93.5	144.6	82.8	47.3	75.0	87.3	73.4	88.2	74°	485	344	111	117	159	106
203	Male	50	120	82.8	84.6	102.1	150.6	?	?	?	?	?	?	?	498	366	119	127	159	102
205	Fem.	20	109	80.5	75.3	93.4	145.0	89.6	44.1	75.0	100.0	67.0	76.4	75°	490	350	112	109	168	107
210	Fem.	40	117	85.8	82.3	95.8	152.0	82.4	43.1	73.3	92.3	80.4	85.2	74°	500	357	119	115	168	103
218	Male	40	121	80.4	78.7	97.9	150.3	?	37.5	67.7	87.1	74.4	91.1	72°	510	366	122	124	168	99
231	Male	35	113	80.6	77.2	95.8	151.3	87.6	44.0	66.6	91.0	65.0	75.0	73°	510	366	120	120	167	107
334	Fem.	45	110	83.2	74.8	89.3	144.0	75.2	54.4	83.0	89.7	79.1	89.1	78°	488	330	120	129	162	108
335	Fem.	40	115	80.7	77.7	96.3	147.3	81.6	54.3	86.2	86.6	75.5	80.5	76°	497	348	113	123	163	111
336	Fem.	60	113	80.0	79.4	99.2	147.0	85.0	42.3	66.6	95.8	70.8	82.8	71°	487	351	116	119	166	101
241	Fem.	35	108	85.2	78.5	92.1	143.3	78.4	51.0	80.0	84.2	65.9	82.8	77°	483	341	118	116	155	104

## ANTHROPOMETRICAL NOTATIONS, CRANIA MAINLAND "CANALIÑO"

Catalogue No.	Sex	Age of subject	Aur-bght	Lngrt-brdrt	Lngrt-hght	Index	Brdt-hght	Module	Facial Index	Nasal Index	Nasal apt Index	Orbital Index	Palatal Index	For.-Mag. Index	Alve-protr angle	Maximum Circumf.	Nasn-opis Arc	Grist frnt breadth	Condylar breadth	Nas-inion Chord	Grist occ breadth
3	Male?	35	112	76.8	74.3	96.8	155.3	?	?	?	?	92.1	?	86.7	?	530	374	115	?	177	116
7	Fem.?	7	118	79.8	83.5	104.5	144.0	?	?	?	?	95.1	?	81.5	?	468	346	111	102	153	111
8	Male	40	118	75.1	75.6	100.7	154.6	86.1	44.8	62.1	80.0	?	?	90.9	?	525	372	112	112	177	117
9	Male	45	122	79.2	81.9	103.4	155.3	?	?	?	?	?	?	?	?	535	380	124	?	178	112
11	Male	40	115	78.0	73.0	93.6	152.3	87.4	47.1	69.4	94.6	76.7	84.8	81°	?	513	365	116	106	169	108
12	Fem.	40	115	77.6	75.8	97.7	143.6	77.1	56.2	87.1	86.8	?	?	75.0	72°	493	343	114	94	165	107
16	Fem.	50	107	75.8	73.5	96.9	141.3	84.2	55.0	?	?	90.5	72.7	?	74°	488	356	106	122	162	107
17	Male	40	113	70.0	?	90.4	140.0	86.4	48.0	66.2	92.1	72.9	?	?	77°	550	352	103	102	174	108
23	Male?	50	118	75.8	75.9	100.0	148.1	82.2	53.0	?	?	93.1	84.0	88.2	83°	510	357	109	123	169	108
25	Male	50	118	79.0	74.5	94.3	149.6	85.1	41.9	74.2	90.0	74.0	89.8	77°	517	378	120	127	170	113	
34	Fem.	25	114	78.8	76.0	96.3	148.6	83.3	46.1	72.3	100.0	70.4	?	?	83°	497	350	114	118	170	108
193	Fem.	55	116	78.1	81.1	103.7	146.0	91.4	43.7	67.7	90.8	65.6	78.2	77°	492	359	111	113	162	106	
195	Male	35	112	79.1	71.4	90.2	152.0	92.7	38.4	60.6	89.4	67.7	75.0	74°	?	523	365	121	126	171	116
196	Male	45	120	79.5	74.8	94.0	162.0	83.7	50.9	79.4	88.3	66.3	75.3	77°	?	544	380	127	134	176	123
197	Male	40	122	77.4	76.3	98.6	157.3	90.7	41.5	61.1	88.8	69.7	71.6	77°	?	535	387	121	124	175	108
198	Male	50	125	76.5	75.5	98.6	161.3	84.4	44.4	71.6	90.2	72.5	84.9	74°	?	545	391	125	126	175	115
199	Male	65	118	78.2	71.2	91.1	156.3	92.3	39.4	64.2	96.0	85.3	94.2	76°	?	534	380	118	132	183	132
200	Male	50	111	75.8	71.9	94.8	147.0	93.6	43.1	70.9	89.7	73.4	86.6	69°	?	503	365	112	122	168	105
202	Male	35	117	76.5	69.2	90.4	157.3	92.8	48.2	77.1	92.3	?	?	81.9	?	542	384	118	131	186	122
204	Fem.	25	113	77.8	76.7	98.5	149.3	86.5	46.0	65.6	91.0	72.5	82.1	74°	?	502	355	119	121	162	118
206	?	7	111	77.7	72.5	92.4	142.6	89.8	43.1	82.6	89.2	60.0	79.1	75°	?	479	356	114	102	159	104
207	Male	40	121	80.7	74.7	92.5	155.0	79.0	50.0	77.9	86.4	72.5	84.2	74°	?	527	375	127	128	172	121
208	Fem.	35	114	78.9	77.5	98.2	150.5	85.1	44.9	72.1	86.0	71.4	75.0	72°	?	505	354	112	120	172	105
209	Male	40	118	78.9	72.9	90.4	155.3	94.6	52.5	87.9	89.2	75.2	79.4	70°	?	525	377	115	118	175	109
211	Male	50	120	73.9	75.5	102.2	153.0	93.9	51.0	70.8	87.8	64.1	93.5	66°	?	523	385	119	116	178	104
212	Male	60	115	78.2	74.3	95.0	150.6	88.9	48.9	76.6	87.5	67.3	94.2	81°	?	510	366	121	118	170	107

## ANTHROPOMETRICAL NOTATIONS, CRANIA MAINLAND "CANALIÑO"

Catalogue No.	Sex	Age of subject	Aur-bgt height	Lngt-brdt Index	Lngt-hght Index	Brdt-hght Index	Module	Facial Index	Nasal Index	Nasal apt Index	Orbital Index	Palatal Index	For.-Mag. Index	Alv.-prof angle	Maximum circumference	Nasn.-opis Arc	Grst frnt breadth	Condylar breadth	Nasn.-inion Chord	Grst occ breadth
213	Fem.	40	116	76.4	74.1	96.9	145.3	85.7	52.6	84.8	89.4	70.0	79.4	77°	493	350	112	112	165	99
214	Fem.	25	112	79.3	75.2	94.9	147.6	89.0	47.8	70.3	94.5	66.6	82.3	76°	500	359	118	116	164	104
215	Male	60	123	73.8	72.8	98.6	160.6	83.8	46.0	67.6	85.0	73.9	78.3	78°	548	393	121	124	182	117
216	Male	55	118	74.1	73.0	98.5	150.0	?	41.8	71.8	87.5	69.0	91.1	75°	520	363	115	121	179	116
217	Male	65	125	78.4	74.7	95.2	157.0	79.2	51.0	75.0	79.4	68.6	87.1	78°	531	392	121	121	172	118
219	Male	50	127	78.9	77.3	91.3	162.3	94.1	46.2	78.1	97.1	73.3	82.4	77°	547	402	127	124	180	112
220	Male	50	112	74.7	74.1	99.2	151.0	97.7	43.1	64.7	97.3	68.7	93.5	80°	513	361	115	122	180	97
221	Male	46	121	75.7	73.7	97.2	161.3	83.8	48.1	77.9	90.9	62.9	81.4	76°	545	391	125	127	186	107
222	Male	50	114	75.2	71.6	95.1	156.3	?	?	?	95.0	?	?	?	530	368	115	120	186	111
223	Male	30	114	78.8	71.4	90.6	157.6	91.4	41.2	62.5	92.5	67.2	88.8	74°	543	382	123	115	188	113
224	Fem.	65	110	75.6	71.8	94.8	149.3	86.5	43.6	75.0	92.1	71.5	86.1	74°	510	359	115	126	169	104
225	Male	65	118	73.0	74.0	101.4	155.6	?	47.3	80.3	80.4	74.4	91.1	78°	535	390	120	123	183	115
226	Fem.	40	116	78.3	83.7	106.9	145.0	95.2	43.1	66.6	86.8	?	80.3	?	482	350	115	111	162	100
227	Male	40	122	80.6	74.3	92.2	162.3	80.1	50.5	71.4	89.7	78.7	79.5	77°	547	382	126	126	172	124
228	Male	45	114	73.8	73.8	100.0	154.3	?	43.2	70.3	94.4	72.0	81.8	76°	523	378	116	123	178	112
232	Male	50	118	76.3	73.1	95.8	154.6	?	43.3	71.8	84.6	69.9	85.1	78°	528	372	120	129	176	112
233	Fem.	65	117	79.4	75.0	94.4	152.6	?	58.8	93.7	87.1	84.5	89.8	78°	517	374	125	125	175	117
237	Male	45	126	72.8	77.7	106.7	153.6	88.5	46.1	70.5	97.3	67.9	82.8	72°	522	372	118	122	182	110
238	Male	45	114	74.8	73.7	98.5	148.3	84.5	40.7	76.6	92.3	67.9	83.3	72°	523	365	114	121	173	107
239	Male	45	113	76.5	74.8	97.7	146.6	89.0	50.0	83.3	89.4	71.1	78.5	72°	510	354	115	117	176	102
240	Fem.	50	116	74.5	76.8	102.9	151.6	84.8	50.0	75.7	94.4	72.1	81.5	73°	503	376	109	120	170	103
242	Fem.	50	115	75.8	73.0	96.3	147.6	83.2	50.5	77.4	95.9	68.0	76.4	80°	502	359	114	116	170	116
243	Male	50	119	79.0	76.2	96.5	154.0	83.9	46.1	75.0	94.7	73.4	85.6	81°	525	367	118	124	177	111

## ANTHROPOMETRICAL NOTATIONS, CRANIA OF SANTA ROSA ISLAND

Catalogue	Sex	Age of subject	Aur-bgt	Lngt-brdt	Lngt-hght	Brdt-hght	Module	Facial Index	Nasal Index	Nasal apt Index	Orbital Index	Palatal Index	For-Mag. Index	Alv-protr angle	Maximum Circumf.	Nasn-opis Arc	Grtst frnt breadth	Condylar breadth	Nasn-inion Chord	Grtst occ breadth
43	Male?	40	118	80.0	72.3	89.7	152.6	84.2	44.8	63.0	103.5	73.3	76.3	75°	522	376	114	118	169	107
44	Fem.	50	112	81.1	71.3	87.8	145.1	79.2	40.0	74.0	91.6	82.9	85.2	76°	520	359	113	118	155	107
48	Male	55	111	75.5	70.8	93.5	152.0	75.8	50.0	74.6	90.5	84.4	p	81°	522	368	110	120	172	111
51	Fem.	35	112	79.7	75.7	94.9	147.3	83.0	46.9	70.7	89.4	75.0	83.8	77°	497	352	110	119	164	110
55	Male	30	113	75.6	69.0	91.2	148.8	p	42.5	63.2	93.5	88.8	84.8	80°	516	363	114	122	169	110
56	?	6	99	81.2	p	138.3	p	84.8	45.9	91.9	100.0	86.1	82.4	80°	478	327	103	104	160	104
57	Male?	60	?	75.0	70.5	94.0	147.3	76.4	46.7	68.2	93.5	73.9	84.2	78°	510	363	113	125	167	111
58	?	50	112	80.2	70.3	87.6	143.6	86.3	48.9	79.6	88.3	86.6	86.1	73°	500	355	122	121	157	101
59	Fem.	45	111	79.5	71.5	90.0	147.3	85.8	50.0	88.8	91.9	73.4	87.8	76°	505	360	112	113	163	109
60	Fem.	40	106	82.2	74.9	91.1	140.1	79.2	49.4	82.4	100.0	79.5	77.1	72°	480	336	113	116	157	105
61	Fem.	35	104	82.8	73.7	88.9	140.3	92.1	47.6	90.9	p	76.5	79.4	72°	475	333	106	105	153	108
62	Fem.?	50	100	80.8	71.2	88.1	140.3	80.3	47.0	75.8	100.0	77.3	93.7	74°	490	337	108	122	153	106
63	Male	50	110	76.2	71.1	93.3	146.0	82.3	50.0	76.9	94.8	74.4	78.9	77°	506	357	115	125	166	106
244	Fem.	65	108	81.7	70.6	86.3	143.0	100.0	45.2	80.0	100.0	80.0	87.5	74°	500	359	112	119	164	110

## ANTHROPOMETRICAL NOTATIONS, CRANIA, NORTH SIDE SANTA CRUZ ISLAND

Catalogue No.	Sex	Age of subject	Aur-bgt hight	Lngt-brdt Index	Lngt-hght Index	Brdt-hght Index	Module	Facial Index	Nasal Index	Nasal apt Index	Orbital Index	Palatal Index	For.-Mag. Index	Alv.-prof angle	Maximum circumf.	Nasn-opis Arc	Grtst frnt breadth	Condylar breadth	Nas-inion Chord	Grtst occ breadth
36	Fem.	28	107	82.2	76.0	92.5	140.3	84.7	49.4	77.4	92.9	70.8	92.5	70°	480	338	110	112	152	104
37	Fem.	50	111	79.8	74.7	93.5	147.6	79.0	50.5	73.4	97.4	85.7	83.1	81°	500	350	120	126	161	110
38	Fem.	60	110	73.6	69.7	94.7	147.6	85.7	44.0	66.6	100.0	80.2	?	77°	514	367	115	118	167	108
39	Fem.	30	112	80.0	69.7	87.1	145.6	83.1	42.8	64.6	90.6	77.7	?	77°	508	357	118	120	162	108
40	Male	55	120	71.7	71.7	100.0	158.3	85.2	44.2	65.7	100.0	78.2	76.2	79°	543	386	116	118	179	116
41	Fem.	19	115	77.1	76.0	98.5	147.6	84.1	48.8	76.7	94.2	89.1	72.9	77°	500	365	114	104	159	108
45	Fem.	50	111	81.3	75.0	92.1	147.0	78.1	40.5	65.6	100.0	75.0	?	83°	508	358	115	114	163	107
47	Male?	30	115	75.5	77.2	102.2	148.3	81.9	48.0	76.1	89.6	75.5	74.3	74°	520	356	117	112	170	109
50	?	40	117	79.3	75.3	95.0	149.8	81.4	51.5	76.5	91.8	82.6	93.9	76°	513	362	114	118	169	112
229	Fem.	65	106	78.0	74.3	95.3	138.0	82.3	50.0	82.1	100.0	69.5	91.1	76°	476	335	105	114	159	104
230	Fem.	70	107	78.2	70.2	89.8	145.0	80.0	45.0	68.1	100.0	89.1	89.2	76°	498	354	110	118	168	105

## ANTHROPOMETRICAL NOTATIONS, CRANIA, SOUTH SIDE SANTA CRUZ ISLAND

Catalogue	Sex	Age of subject	Aur-bgt	Lngt-brdt	Lngt-hght	Brdt-hght	Module	Facial Index	Nasal Index	Nasal apt Index	Orbital Index	Palatal Index	For.-Mag. Index	Alve-profl angle	Maximum circumf.	Nasn-opis Arc	Grtst frnt breadth	Condylar breadth	Nasn-inion Chord	Grtst occ breadth
42	Male?	50?	112	77.4	70.6	91.2	146.3	80.7	52.8	68.6	93.3	?	89.0	?	502	361	109	113	163	115
46	Male	50	122	?	?	?	?	?	49.0	73.1	94.5	80.4	?	71°	?	?	116	?	?	?
52	Fem.	70	106	78.8	72.3	?	142.3	?	?	?	?	?	92.7	?	485	344	109	108	160	107
53	Male	50	117	74.8	?	?	?	79.2	40.7	65.6	90.0	72.0	?	?	?	?	123	121	?	?
66	Male?	55	108	70.7	70.7	90.8	150.0	?	47.5	68.0	100.0	92.9	82.8	81°	520	361	114	120	174	110
67	Male?	60	108	75.5	72.8	96.2	146.6	?	52.5	78.3	90.9	82.6	78.9	76°	505	360	108	115	170	106
68	Male?	50	108	69.6	?	?	149.8	88.1	51.0	86.6	93.2	82.2	?	?	505	375	115	?	175	100
69	Male?	45	111	79.0	74.1	93.8	146.8	88.2	49.0	77.4	89.4	68.0	86.9	74°	500	353	110	112	164	113
70	Male	50	115	78.5	?	?	?	?	?	?	?	?	?	?	520	370	119	?	174	110
71	Male	50	113	78.0	68.1	87.3	149.3	?	46.2	72.0	87.3	81.1	?	?	515	370	?	122	172	108
72	Fem.	18	105	84.4	74.5	88.2	139.0	?	53.4	90.3	95.8	86.4	92.3	75°	471	335	105	112	156	104
73	Male?	70	115	80.3	70.0	87.0	152.6	?	54.6	77.9	94.7	75.5	80.8	74°	523	383	118	116	174	118
74	Fem.?	50	111	80.7	70.0	86.7	148.0	?	?	?	?	?	82.8	?	510	367	115	122	167	118
75	Fem.	60	114	76.5	71.5	93.5	151.3	79.3	47.9	79.3	88.6	80.0	78.5	74°	520	372	118	120	167	108
76	Male	80	114	76.3	72.0	94.1	150.6	78.6	54.7	81.2	83.1	87.9	94.1	77°	522	372	110	120	174	114
77	Male	45	122	81.2	73.2	90.1	158.0	?	41.5	70.1	85.0	67.3	84.4	76°	540	382	121	125	177	120
78	Fem.	40	105	74.0	66.3	89.5	145.0	88.2	50.0	78.1	92.8	74.4	?	71°	510	358	106	111	169	108
79	Fem.	60	120	80.8	80.4	88.5	148.3	99.7	57.7	86.6	89.7	76.1	?	75°	510	365	125	123	158	121
80	Fem.	65	111	80.4	67.0	84.0	148.0	81.0	49.4	85.7	93.0	79.0	82.5	78°	520	362	111	115	164	111
81	Male	45	112	74.6	70.8	94.9	151.3	85.1	47.6	69.4	90.0	72.5	80.0	75°	530	378	?	113	174	109
82	Fem.	25	109	77.9	70.3	90.2	146.5	86.3	50.0	80.0	100.0	74.6	74.4	70°	502	355	107	114	161	109
83	Male?	45	?	81.0	69.2	85.5	149.3	?	51.9	85.4	96.0	84.2	89.5	72°	522	367	117	?	163	112
84	Fem.	45	104	74.9	67.4	90.0	140.1	86.1	46.0	71.2	97.3	78.7	?	65°	490	352	105	114	164	105
85	Fem.?	40	107	79.8	71.6	89.6	141.6	83.4	45.4	69.6	96.0	80.9	86.3	72°	490	339	92	117	164	107
86	Male	50	109	80.0	73.7	92.1	148.0	?	43.3	71.8	92.1	75.2	88.5	72°	507	355	115	113	165	109
87	Fem.	50	108	82.6	?	?	?	?	46.3	65.6	90.5	78.7	?	66°	?	?	110	109	?	107
88	Fem.	50	107	79.0	70.6	89.3	147.3	?	47.5	72.7	88.6	72.7	?	70°	502	359	112	109	171	108

## ANTHROPOMETRICAL NOTATIONS, CRANIA, WEST END SANTA CRUZ ISLAND

Catalogue No.	Sex	Age of subject	Aur-hgt	Length-prdt	Length-hght	Brdt-hght	Module	Facial Index	Nasal Index	Nasal apt	Orbital Index	Palatal Index	For.-Mag. Index	Alv-protr angle	Maximum Circumf.	Naso-optic Arc	Grtst front Breadth	Condylar Breadth	Nas-inion Chord	Grtst occ Breadth
54	Fem.	70	111	83.7	70.9	84.7	146.0	?	42.0	77.7	92.1	91.9	?	?	505	352	116	?	160	106
89	Male	50	121	75.5	77.1	102.1	158.3	88.3	42.5	63.8	88.4	87.0	85.9	76°	537	388	123	125	175	113
90	Male	45	125	71.9	76.7	106.6	156.6	85.2	44.2	65.7	89.7	77.5	88.8	74°	535	391	116	121	179	118
91	Male	40	117	75.9	72.1	95.0	154.6	89.1	40.3	61.9	100.0	74.7	78.9	75°	527	371	112	126	178	109
92	Male	22	114	80.3	74.7	93.0	151.3	79.4	50.0	40.3	88.3	85.1	84.7	74°	510	363	111	124	165	110
93	Male	40	110	75.7	76.8	101.4	149.0	87.8	40.3	67.7	90.8	85.1	90.9	77°	503	361	107	128	173	111
95	Male	35	116	81.4	76.9	94.4	153.3	85.5	50.0	73.4	90.0	70.5	81.9	77°	515	371	113	127	172	112
96	Fem.	25	118	81.8	74.1	90.6	155.3	77.0	50.0	81.6	85.0	77.4	92.5	77°	528	368	126	123	168	105
97	Male	25	117	78.1	75.9	97.2	155.0	?	44.0	68.9	100.0	70.8	71.2	77°	523	375	119	120	168	114
98	Fem.	25	109	79.0	72.6	92.1	145.3	85.9	45.4	68.9	97.2	73.5	?	74°	510	365	111	114	163	110
99	Fem.	30	111	80.0	76.5	95.7	149.6	85.4	44.0	73.3	94.8	80.9	92.6	71°	502	352	107	119	167	109
100	Male	35	115	78.0	74.1	95.0	153.0	82.4	47.9	71.8	92.1	72.6	88.5	74°	510	360	111	119	170	106
101	Fem.	70	111	74.3	68.1	91.0	145.0	82.2	59.5	94.3	82.5	79.5	83.7	77°	512	355	114	119	165	110
102	Male	45	111	75.9	72.6	95.5	148.3	90.5	42.3	64.7	96.0	85.4	?	73°	505	366	112	122	171	113
103	Fem.	70	107	77.3	78.3	101.5	145.6	84.1	48.8	80.0	97.3	72.0	88.2	73°	485	345	108	113	163	105
104	Fem.	70	109	79.6	77.3	80.5	147.3	73.9	48.9	71.8	84.6	85.3	80.5	79°	500	348	112	120	162	114
105	Fem.	65	106	80.7	72.2	89.4	144.1	88.0	52.2	?	94.7	77.2	82.7	77°	495	350	114	115	160	101
106	Male	35	111	75.4	79.4	105.3	148.6	90.3	53.2	83.3	86.5	76.6	86.1	71°	497	357	112	111	166	107
107	Male	70	117	73.2	73.8	100.7	154.0	83.9	48.9	68.5	81.7	69.3	?	81°	520	380	114	127	183	118
109	Fem.	30	106	80.2	73.0	91.0	141.0	91.6	55.0	76.5	86.5	76.6	87.5	78°	482	339	110	110	162	101
110	Fem.	55	111	81.0	74.9	94.8	144.3	78.8	51.0	85.7	93.2	73.0	?	75°	498	352	116	121	160	111
112	Fem.?	30	109	77.4	69.3	89.5	142.3	77.8	48.8	77.7	93.1	84.4	77.7	76°	495	353	109	114	162	108
113	Male	50	108	72.7	63.8	87.7	150.6	85.9	47.3	65.4	84.2	72.3	88.8	71°	532	386	119	115	177	108
114	Male	65	121	77.0	77.5	100.7	158.6	81.9	50.0	73.5	92.5	72.8	91.6	77°	545	392	118	126	174	119
115	Fem.	75	110	72.5	74.8	103.1	144.3	90.3	53.3	77.4	91.6	71.7	81.1	77°	493	355	110	112	163	105
116	Male	50	111	73.4	68.2	92.9	154.6	85.6	48.9	70.5	89.4	68.5	88.3	78°	540	368	117	116	183	112
117	Male?	40	118	81.4	77.5	95.9	153.6	88.1	46.0	67.6	100.0	67.3	83.5	72°	510	361	115	118	172	107
118	Fem.?	55	105	78.7	72.4	91.2	145.6	81.7	51.0	75.8	94.6	66.6	83.7	72°	497	346	109	116	162	112
119	Fem.?	40	117	76.7	78.4	102.2	149.6	86.8	46.0	71.2	93.4	68.6	85.7	74°	505	367	115	121	167	115

## ANTHROPOMETRICAL NOTATIONS, CRANIA, WEST END SANTA CRUZ ISLAND

Catalogue	Sex	Age of subject	Aur-bght	Lngt-brdt	Index	Lngt-hght	Index	Brdt-hght	Module	Facial	Nasal	Nasal apt	Orbital	Palatal	For.-Mag.	Aliv.-prof	Maximum	Circumf.	Nasn-opis	Grstt frnt	Condylar	Nasn-inion	Chord	Grstt occ
122	Fem.	40	105	80.6	71.0	88.0	147.6	90.9	48.1	76.5	89.3	78.7	88.2	70°	505	348	169	122	166	166	107	107		
123	Fem.	75	107	73.3	68.8	96.2	145.3	84.5	52.1	77.4	86.8	88.6	84.3	79°	500	363	107	116	168	168	107	107		
124	Fem.	25	111	77.9	75.1	96.3	149.3	86.7	48.4	88.6	94.4	73.6	82.0	75°	502	341	114	115	166	166	106	106		
125	Male	30	118	74.8	75.4	100.7	156.0	94.7	39.6	63.6	96.2	72.9	82.4	72°	524	377	115	117	177	177	110	110		
126	Fem.	30	106	80.2	74.2	92.5	141.6	85.2	43.6	66.1	94.4	73.9	88.0	70°	480	334	104	116	158	158	100	100		
127	Fem.	35	111	86.3	73.2	84.8	145.3	85.7	45.3	77.1	90.0	74.4	88.2	71°	498	348	109	116	159	159	114	114		
129	Male	50	109	76.2	70.7	92.7	149.0	86.1	54.1	76.9	84.6	73.1	80.0	79°	515	365	112	120	172	172	117	117		
130	Male	45	123	76.0	74.4	97.9	157.0	85.8	46.0	67.6	89.8	74.7	87.0	76°	537	383	120	125	178	178	117	117		
131	Fem.	75	110	80.7	75.3	93.2	141.6	83.8	53.4	79.3	94.7	74.7	?	80°	487	339	111	112	160	160	103	103		
132	Male	35	122	72.5	77.9	107.3	155.3	83.4	46.3	67.1	90.0	70.0	75.7	76°	520	381	114	123	173	173	105	105		
134	Fem.	35	111	83.3	80.9	90.0	144.6	90.4	44.6	70.0	95.9	65.3	?	76°	493	350	113	119	157	157	111	111		
135	Male	65	120	78.9	74.0	93.8	156.0	78.8	44.1	66.1	90.1	88.2	87.5	80°	522	386	111	126	172	172	112	112		
136	Male	40	116	76.5	73.7	96.4	152.6	86.5	38.8	66.6	95.0	68.7	78.0	79°	520	365	117	115	170	170	109	109		
137	Male	50	116	78.7	77.5	98.5	152.0	83.9	48.9	69.8	89.4	68.0	82.8	77°	510	369	115	125	173	173	112	112		
138	Male	40	112	72.0	71.5	92.1	148.6	96.0	45.8	67.6	92.1	66.6	82.3	74°	518	379	116	124	176	176	113	113		
140	Male	60?	121	76.5	71.5	100.7	154.6	88.2	51.0	74.2	87.5	77.8	80.6	77°	518	379	116	124	176	176	113	113		
142	Fem.	80	110	75.4	70.8	93.9	143.6	86.1	56.1	88.4	85.3	74.2	?	77°	490	351	109	111	164	164	105	105		
143	Fem.	25	117	77.7	78.2	100.7	149.3	83.3	44.9	75.8	92.1	73.2	86.4	76°	502	363	115	129	168	168	?	?		
145	Fem.	60	?	79.0	?	?	?	?	43.6	70.3	92.5	79.3	?	71°	495	340	113	120	165	165	?	?		
146	Fem.	50	106	75.8	69.1	91.1	145.3	81.8	51.1	75.8	86.4	81.8	87.5	78°	497	351	110	121	170	170	104	104		
147	Male	60	112	77.6	?	?	?	88.5	48.9	83.9	91.8	72.0	?	78°	510	367	110	113	166	166	112	112		
148	Fem.	60	111	76.6	74.2	96.9	143.0	89.5	42.8	63.6	92.1	70.7	?	75°	487	352	110	118	165	165	101	101		
149	Male	30	115	74.0	72.1	104.8	153.3	91.7	47.9	79.3	94.7	71.4	84.7	74°	505	360	114	120	170	170	107	107		
151	Fem.	55	108	79.1	70.5	89.0	144.0	82.9	42.8	65.6	80.7	65.2	90.9	77°	496	346	109	111	164	164	107	107		
152	Fem.	50	111	79.2	73.6	92.9	150.0	85.6	41.6	66.6	94.4	79.0	87.5	75°	515	375	119	117	166	166	105	105		
153	Fem.	65	110	82.2	75.7	92.1	145.3	78.0	48.8	75.8	84.6	66.0	93.7	77°	495	347	113	121	159	159	110	110		
154	Fem.	65	109	81.1	69.7	85.9	146.3	74.8	55.8	82.7	?	63.7	88.2	?	515	361	118	117	171	171	110	110		
155	Fem.	70	106	73.5	70.1	96.1	141.6	83.4	47.8	78.5	89.4	69.5	88.7	77°	490	352	109	116	163	163	108	108		
156	Male	40	119	78.0	75.2	96.4	153.6	87.9	44.0	70.2	97.4	64.1	88.5	77°	525	372	117	131	173	173	112	112		

## ANTHROPOMETRICAL NOTATIONS, CRANIA, WEST END SANTA CRUZ ISLAND

Catalogue No.	Sex	Age of subject	Aur-bgt	hght	Lngr-brdt	Index	Lngr-hght	Index	Brdt-hght	Module	Facial Index	Nasal Index	Nasal apt Index	Orbital Index	Palatal Index	For.-Mag. Index	Alv.-prof angle	Maximum Circumf.	Nasn.-opls Arc	Ortst frnt breadth	Condylar breadth	Nasn.-in-ion Chord	Ortst occ breadth
158	Fem.	35	107	77.4	74.5	96.2	145.3	?	53.3	80.0	89.1	65.3	80.0	73°	495	349	111	118	167	104			
159	Fem.	65	106	78.8	71.4	90.5	146.0	91.5	46.0	71.8	94.5	70.8	87.8	70°	500	363	112	115	164	111			
160	Male	35	107	76.9	68.5	89.0	145.6	80.0	52.1	81.6	91.9	68.0	83.3	74°	500	352	113	114	170	107			
161	Fem.	25	107	80.0	71.7	89.7	142.6	?	53.5	83.3	84.2	65.2	82.5	78°	488	345	112	114	158	105			
162	Fem.	90	109	76.2	70.6	92.5	145.6	80.7	46.1	72.7	92.5	?	82.3	78°	502	355	112	124	167	106			
163	Male	60	108	75.0	70.5	94.0	147.3	?	43.1	73.3	86.5	75.7	?	75°	510	359	117	117	169	112			
164	Fem.	65	108	78.9	74.2	94.0	144.3	?	44.7	74.1	86.8	72.3	83.8	75°	493	352	113	111	164	107			
165	Fem?	70	116	76.9	76.9	100.0	154.0	?	48.0	73.8	92.1	74.4	81.1	79°	520	369	120	118	?	?			
166	Fem.	65	105	79.0	74.8	94.7	141.3	?	51.6	80.0	93.2	77.0	90.9	70°	478	337	107	111	158	108			
167	Male	45	?	78.2	78.7	100.6	161.0	?	50.0	77.4	85.0	64.6	90.9	86°	538	405	120	118	186	112			
168	Male	50	115	70.1	73.3	104.4	155.0	?	45.3	75.8	87.5	70.2	80.0	80°	525	375	114	120	178	108			
170	Male	50	118	75.1	72.4	96.4	156.0	?	48.0	77.4	90.2	72.5	86.8	78°	525	380	114	125	179	114			
171	Male	70	117	75.2	76.3	101.4	152.6	?	43.4	67.6	100.0	71.4	82.8	76°	523	378	116	119	175	112			
172	Male?	90	108	78.5	72.8	92.8	148.3	?	48.0	87.2	83.8	80.0	85.1	75°	510	352	117	116	168	111			
173	Fem.	40	112	77.2	70.0	90.6	148.3	?	47.9	79.3	84.6	77.5	83.3	77°	508	361	113	117	171	107			
175	Fem.	60	110	78.7	71.5	90.7	149.3	87.0	44.2	70.0	102.7	75.5	89.5	74°	510	361	113	113	162	111			
176	Male	75	119	77.5	77.5	100.0	151.3	?	45.1	67.6	92.6	67.3	73.0	76°	510	367	117	117	169	107			
177	Fem.	90	109	74.4	68.9	92.5	146.0	?	53.6	81.2	100.0	82.6	80.0	77°	507	370	114	116	173	114			
178	Fem.	80	112	74.1	78.1	105.4	146.3	?	49.4	81.8	90.2	74.4	86.7	?	486	354	107	116	169	99			
179	Male	65	?	?	72.4	?	?	82.7	51.0	79.0	92.1	69.3	?	77°	500	353	111	111	169	?			
181	Male	60	115	83.0	71.7	86.4	150.3	?	47.1	72.0	92.1	64.7	?	73°	515	360	120	123	168	109			
183	Fem.	40	116	77.5	74.7	96.3	149.6	?	48.8	66.6	93.1	64.5	70.8	77°	506	357	120	120	163	106			
184	Male	50	120	75.1	74.5	99.2	154.0	?	49.0	73.5	86.9	78.0	84.9	81°	526	373	113	121	177	109			
185	Male	70	114	73.7	74.8	101.4	151.6	?	48.9	67.6	89.1	74.4	88.2	79°	510	367	110	118	174	109			
187	Fem.	60	110	78.6	71.1	90.4	144.0	?	50.0	80.0	90.0	75.0	80.6	74°	497	353	108	121	163	109			
188	Male	70	117	79.5	78.9	99.2	151.6	?	44.0	64.7	86.8	80.9	86.1	77°	510	364	115	117	168	111			
189	Male?	55	111	78.2	70.1	89.5	152.3	86.5	46.9	76.6	91.1	67.3	88.5	71°	521	363	114	123	176	112			
190	Male	60	114	71.0	72.6	102.3	148.6	88.0	40.1	64.0	100.0	67.0	78.9	78°	510	369	113	120	175	105			
191	Male	40	116	78.1	72.6	93.0	153.0	?	48.0	72.7	89.6	73.8	87.3	73°	517	376	118	116	172	105			

I believe that to the trained anthropologist the foregoing tables of cranial notations will be sufficiently complete and clear to serve the purpose for which they were intended, viz., as a basis for comparison along anthropometrical lines of the hitherto somewhat neglected peoples who have at different times and under varied conditions, occupied the shores of the Santa Barbara Channel.

For the benefit of the lay reader I append the following summaries of the salient points of the tables of measurements and indices which, though they lack much in completeness, will perhaps give a clearer understanding of the subject.

To those wholly unacquainted with the procedure of anthropometrical deductions, I will briefly explain that an "index" is simply a decimal notation of the relationship of length to breadth. Hence, were such a cranium possible, a skull measuring one hundred and sixty mm. in length by one hundred and sixty mm. in breadth would have a length-breadth index of 100.0. Whereas, another, measuring one hundred and eighty mm. in length by one hundred and forty mm. in breadth, would have an index of 77.7. In other words, the greater the width as compared with the length, the higher the index. This rule applies not only to the cranium as a whole, but also to each of its parts.

Bearing the above formula in mind, there will be little difficulty in noting the resemblances or differences existing in the various classifications. All measurements are given in millimeters.

SUMMARY OF SALIENT CRANIAL MEASUREMENTS AND  
INDICES, FOREGOING TABLES

Averages of groups given below.	Length-breadth Index	Length-height Index	Breadth-height Index	Module	Facial Index	Nasal Index	Orbital Index	Maximum skull circumference
Seven Males, "People of the Oak Grove".....	73.5	71.8	97.8	149.6	88.3	51.5	95.3	514
Ten males, "Hunting People".....	80.0	79.0	99.0	152.4	83.3	44.1	90.9	529
Thirty-four males, main- land "Canaliño".....	77.2	74.3	96.6	154.3	87.6	46.0	90.4	529
One male (alien) from "Williams No. 1".....	75.5	73.4	97.2	159.8	84.5	51.4	82.4	538
One male, San Miguel Island.....	73.0	72.8	100.0	159.8	?	49.0	92.5	546
Five males, Santa Rosa Island.....	76.5	70.7	92.3	149.3	79.7	46.8	95.2	515
Fifty-eight males, Santa Cruz Island.....	76.0	73.3	95.9	152.0	84.2	47.1	91.2	522
Sixteen females, "Hunt- ing People".....	82.8	77.6	94.2	145.5	85.6	46.7	92.1	488
Fourteen females, main- land "Canaliño".....	77.4	76.7	98.7	147.7	86.3	49.1	91.4	500
Six females, Santa Rosa Island.....	81.1	72.8	89.8	143.8	90.0	46.5	94.6	496
Sixty-three females, Santa Cruz Island....	78.8	72.7	92.4	145.2	83.4	48.1	92.1	499

For the purpose of comparison with the foregoing table the following condensed list of a series of measurements and indices of extraneous and diverse groups of crania has been appended.

Averages of various extraneous groups listed below.	Length-breadth Index	Length-height Index	Breadth-height Index	Module	Facial Index	Nasal Index	Orbital Index	Maximum skull circumference
One male, Micmac Indian, Museum of Nova Scotia (Cameron).....	80.8	73.1	110.4	154.4	?	50.0	88.0	533
Forty Indians from southern New England. Male. (Knight) .....	73.6	74.7	101.5	150.0	84.3	52.0	80.9	511
Fifty-seven Lenape (Delaware) Indians. Males. (Hrdlicka).....	73.9	73.1	98.9	155.6	87.6	44.0	?	513
Seventeen Indians, San Nicolas Island, Males. (Gifford).....	76.0	71.0	93.0	150.0	99.0	52.0	?	?
Several Indians, San Miguel Island. Sex ? (Oetteking).....	78.3	72.5	107.5	148.3	?	?	?	?
Seventeen Lagoa Santa, S.A. Primitive. Sex indeterminate. (Kollmann, ten Kate, and Hansen).....	71.0	80.2	110.8	153.0	?	50.2	86.4	515

The general average of the indices of the crania of any considerable group may be relied upon to give a rough summary of the cephalic characteristics of that people. There are, however, certain phases of anthropometrical analysis that are not adequately represented by tables of indices. I refer in particular to the occasional presence, in nearly every group that is studied, of widely divergent types.

A single extraneous individual found in the populous cemetery of the people among whom his death had occurred, even though the fact of his alien origin could never be proved, would, by the outstanding peculiarities of his physique, affect the general average of the indices of this particular group but little. On the other hand, if several of this peculiar, alien type should occur, their presence would at once be indicated by a decided raising or lowering of the index of the group, in the items by which they were physically differentiated. Bearing this in mind, a short commentary on the prevalence and scope of variability of certain cranial features in the various groups before us is appended, to qualify somewhat the rigid summaries found in the foregoing tables. Five, only, of the anthropometrical landmarks have been selected for this purpose, these, however, being considered of chief importance.

First we will consider the length-breadth index. In the first group, that of the Oak Grove People, we find an average of 73.5; a figure that stands midway of the dolichocranial classification, the extremes ranging from 71.1 to 76.6, a range of variability covering only 5.5. Only one specimen is outside of the class shown by the general average, and this one by only a slight margin.

In the second group, males of the Hunting People, our average is 80.0, a figure which establishes them upon the exact border line between the mesocranial and the brachycranial class. The extremes are 76.3 and 82.8, with a range of variability of but 6.5, every cranium falling well within the two classes between which the average lies, the majority, however, being within the brachycranial.

The third group, males of the mainland Canaliño, have a length-breadth index of 77.2 as the average of thirty-four individuals; this mean is well within the mesocranial classification, almost exactly midway between the two previously described

groups. When, however, the individuals of this race are taken into consideration, we are confronted by a range of variability that proves almost disconcerting. We find one individual with the remarkably low hyperdolicho cranial index of 69.2, while one at the opposite end of the scale shows 81.9 or brachy cranial, a range of 12.7 in variability, or approximately twice as great as that of the two preceding groups. We will call attention, however, to the fact that, in the majority of the subjects, the indices correspond very closely to the general average.

If we assume that the well established Canaliño type was the result of an early commingling of the brachy cranial Hunting People and an intrusive dolicho cranial horde, what more natural than to find occasional reversions to either one or the other of the ancestral types?

These extreme types may, on the other hand, represent the result of late alien accessions which have not acquired the racial characteristics of those among whom they were found. This latter supposition is strengthened somewhat by the finding in the Williams site No. 1 of an undoubted aberrant extraneous specimen which exhibits extreme anthropometrical features.

We will now take up briefly a similar analysis of the Channel Island crania that are at hand.

From the island of San Miguel only one measurable skull was obtained by our expedition, and this is of such unusual proportions that we will pass it by for the present.

Five male crania from Santa Rosa Island were carefully measured and compared. The length-breadth index of these crania average 76.6 or very close to that of the mainland Canaliño. The extreme types are 75.0 and 80.0, showing a range of variation of only 5.0. All the indices, both average and extremes, fall within the meso cranial classification. Judgment upon this apparent great uniformity of type should, however, be withheld until after we consider the female specimens recovered from the same locality.

The largest series of measurable male crania that lies before us is that from Santa Cruz Island, fifty-eight in number. These give an average length-breadth index of 76.0, again closely approximating that of the mainland Canaliño. The extremes in this case are 69.6 and 81.4, giving a range of variability of 11.8. These data show that the length-breadth index of the island

male differed in no essential feature from that of his mainland contemporary.

We will now consider the length-breadth feature of the female crania from the groups before us. These crania are always less satisfactory to the writer than are those of the male, owing in many cases to arrested development and malformation. They have, nevertheless, in this case been given the same careful scrutiny as the crania of the males.

Unfortunately no measurable crania of the females of the Oak Grove People have been restored to a state that will warrant detailed measurements. On the other hand the crania of the females of the Hunting People are available in considerable numbers. These show an average length-breadth of 82.8, safely brachycranial as a class. The extremes are 79.6 and 85.8, showing a limited range of variation of 6.2, barely passing beyond the limits of the class at each extreme. The slight range of variation in the crania of this people, both male and female, is an outstanding phenomenon.

A large series of the female crania of the mainland Canaliño gives an average length-breadth index of 77.4, practically as low as that of the males in the same group, an unusual occurrence in any aggregation. In this case, it would be possible to account for this figure, at least in part, by supposing that the four crania numbered 16, 224, 240, 242, all extremely low in length-breadth index and widely divergent in other features from their associates, are those of extraneous people. Nothing associated with their burial or personal belongings, such as occurred in the case of a male found at Williams site No. 1, tends to verify this supposition. However, the general appearance of the elongate skulls at once attracts attention and leads to conjecture.

Should these four crania be segregated as of alien origin, the remaining crania in this group give an average index of 78.4, which shows about the normal percentage above that of the males in the same group. Still omitting the above mentioned four crania, we find the extremes to be 76.4 and 79.8, showing a range of variation of 3.4, all measurements falling easily within the mesocranial classification.

Taking up the females of the two Channel Islands, we find that the average length-breadth index of those of Santa Rosa

is 81.1, a surprisingly high figure, but here, too, are circumstances that tend to explain the apparently irreconcilable difference in the indices of the two sexes. This entire group of fine female crania which furnished the material for measurement were taken from an isolated cemetery, at a distance from the old, established burying ground where hundreds of fragile skeletons were superficially examined and found to display no abnormal traits. My conclusion, based upon the isolated nature of the burials, was that the crania presented here were probably those of aliens. This theory, if tenable, might easily account for the widely differentiated indices noted above.

Abundant material from Santa Cruz Island displays nothing startling in the way of exaggerated indices, the measurements running very close to those of the contemporary mainland Canaliño. The average length-breadth index is 78.8, almost identical with that of the females of the above mentioned people. The extremes run from 73.3 to 86.3, giving a range of variation of 13.0, which is greater than that of any of the groups under discussion.

A comparison of the various classes, by means of the cranial module, gives in this case very different results. The most striking is the great similarity displayed in this respect between the crania of the male mainland Canaliños and those of Santa Cruz Island. The females of each of the groups give a very low average module.

The facial and nasal indices of the table are eloquent of the different facial expressions that would have been revealed to the spectator, as he gazed at the members of the various groups. The man of the Oak Grove shows, beneath a low and sloping brow, a rather short and broad face, illuminated by large, orbicular eyes, and with short, rather broad and flattened nose and protruding teeth and lips.

The man of the Hunting People had a high brow and a much longer face than the man of the more ancient race, with rugged features, including a massive lower jaw, crag-like cheek bones and long, thin and slightly aquiline nose. His eyes were almond shaped, with a pronounced horizontal declination. We may even picture a cast of countenance similar to that of the buffalo-hunting tribes of the great plains.

The man of the mainland Canaliño, with more refined fea-

tures, yet retains to a large extent the nasal and orbital features of his Hunting People predecessors, set, however, in a much shortened face.

In general facial appearance, the Indians of the two larger Channel Islands appear to have resembled their mainland contemporaries, although there were a few striking differences. One of these characteristics, disclosed by the male crania from Santa Rosa, is the extremely low facial index, averaging only 79.7, placing them safely within the hypereuryprosopic class. This very low rating in facial index is not due to an extraordinary widening of the zygomatic elements, noticeable in some races, but to a very short nasion-gnathion line. This characteristic coupled with the low module, might easily have distinguished them from their contemporaries of the mainland, or even from those of the adjacent shores of Santa Cruz Island, nearly all of whom fall within a much higher facial classification; the mainland Canaliños, both male and female, are in the mesoprosopic and those of Santa Cruz in the euryprosopic class.

In striking contrast to the males of Santa Rosa, their supposedly alien wives are found to have the highest facial index of any crania found in the region, viz., 90.0, or upon the border line of the leptoprosopic. In this case, however, the average index is not to be taken without qualifications, as the extremely high index is chargeable largely to one abnormal specimen that gave an index of 100.0. In sharp contrast to this, and even to the general average, are two specimens that reach only 79.2, even lower than the average of that of the males and in the same class, whereas four classes separate them from the other extreme, which lies near the outer borders of that rare classification, the hyperleptoprosopic.

Taking up other cranial features, which, though not of first importance, are held to be of considerable value in the classification of a race, we note the decided feature of prognathy in the alveolar region, a characteristic that at once arrests the attention of one intimately acquainted with so-called normal crania of the European type, or even that of an eastern Indian. This peculiarity is present in a large percentage of the subjects listed above, to whichever group we may choose to turn. To find an equally pronounced development of this feature among living races, one must go nearly to the Malaysian peninsula.

Other items of note are the indices of the maxillo-alveolar region and the palate, closely related features. Each class exhibits a relatively high index; the average of the maxillo-alveolus of one hundred individuals, taken at random, gives an index of 118.0, or well within the brachyuranic classification. For comparative purposes, we present the following. The approximate average maxillo-alveolar index of any considerable group of enlightened men of today is around 122.0. Of ninety-three southern New England Indian crania examined by Knight, (*Craniometry of the Southern New England Indian, 1915*), the average is 124.0. The Haida Indian shows 120.0. The Australian Black gives an average of 107.0. To go further afield, the chimpanzee shows an average of 81.0 and the gibbon 79.0.

The palatal indices exhibit practically the same comparative results, the various groups showing a general average index of 87.0, or well within the brachystaphyline classification and very near the indices of living enlightened races, especially those of Mongolian antecedents. From Knight's list mentioned above, we learn of a palatal index of 81.0 for the early New England Indian. The Haida presents 89.0, the Australian Black 71.0, the chimpanzee 54.0 and the gibbon 47.0.

From the foregoing brief and highly condensed resumé of the results of our anthropometrical study of the remains of the former Channel dwellers, it will be readily seen that the features of the cranium, generally accepted by anthropologists as milestones marking the physical advance of a people, show conclusively that the race, or races, that once occupied the shores of the Santa Barbara Channel, even the rude and primitive Oak Grove People, had attained a vastly greater degree of physical perfection than the palæolithic peoples of the old world. In other words, ancient as some of the remains certainly are, they are all, judging from the evidence of the crania alone, unquestionably those of *Homo sapiens*, the modern man.

There are, furthermore, almost innumerable modifications of the crania, each more or less inconspicuous in itself, but repeated with such frequency as to become impressive, and to combine into a type of skull unmistakable in its character. These slight modifications have been carefully studied and the combined results compared with the results of similar investigations in other

fields. A few of the deductions from this comparison may prove of interest.

In a great majority of the cases at hand, the principal cranial sutures are very distinct. Taken as a whole they are much more simple in configuration than are those of the Caucasian, although occasionally very irregular, even to the extent, in rare cases, of enclosing extra cranial plates of greatly varying dimensions. In spite of these exceptions, they are, in the majority of cases, much more closely akin to the simple contour of the Mongolian than to the broken and irregular line of the European.

Again using European crania for comparison, we find very few pronounced chins, the general average of the pogonion being far less protuberant. This, again, we may safely consider a Mongolian feature, as also the high percentage of cases where the foramen magnum approaches very near to a circular outline, as contrasted with the irregular contour of that of the Caucasian or Negro.

The horizontal declination of the orbit also inclines strongly towards that of the Mongolian races; at the highest extreme it seldom reaches the European mean of 20, and cases are frequently encountered where the lowest extreme drops below the Japanese mean of 14. Moreover, we find an almost universal vertical concavity of the nasal bones among our specimens which tallies almost exactly with that found among the Mongoloid races. The upper face follows almost perfectly in contour and index that of the Mongolian, and differs quite noticeably from that of the Caucasian. The protruding maxillo-zygomatic processes, popularly termed "high cheek bones," are unequivocally Mongolian in nearly every specimen at hand.

In common with the majority of American Indian groups, the people of the Channel display a marked development of the "lingual groove" in the upper incisors, especially so in the median pair. I even suspect that this characteristic is more prevalent and occurs in a more highly developed form than is to be found with adjoining peoples, although I have not been able to test this thoroughly by detailed comparison. In any case, in the highly developed form found among our specimens, it is characteristically Mongolian in its affiliations.

Numerous other but less easily defined characteristics of the crania at hand point no less conclusively to a fairly close rela-

tionship between the people under discussion and the forefathers of races like the Kalmuck and Buriat, who still occupy the region in interior Asia from which the American Indian is believed to have migrated.

Judging by the evidence of the crania alone, it is clear that of the various groups discussed, the people designated as the mainland Canaliño, and the people found contemporaneously upon the adjacent islands of Santa Cruz and Santa Rosa, were racially very closely connected. From the same evidence, we infer that the Hunting People bore but casual physical resemblance to the aforementioned groups. It is equally plain that the Oak Grove People were even more widely separated physically, although in their case the variation is, in many items, almost diametrically opposed to that exhibited by the Hunting People. In spite of this dissimilarity, all conform, more or less, to the type designated as "American."

An outstanding physical characteristic of the mainland Canaliño, which is nearly always a subject of comment from the public when its attention is called to the matter, is the remarkable condition of the teeth. In the case of the modern Caucasian, perfect dentition is practically unknown, owing doubtless to the character of our diet for many generations. The mainland Canaliño, on the other hand, appears to have attained a perfectly balanced ration, prepared in a manner best calculated to stimulate and exercise the organs of mastication. Otherwise, we should not find the perfect dentition that is prevalent among this people. This condition is not alone found with the young, whose uncrowded, straight and even teeth are features of which we may well feel envious; in much older subjects the teeth are still marvels of efficiency. They are frequently found in a much worn condition, but even in such cases there is no trace of cavity or decay, or other pathological condition. In advanced age, we find instances where the crowns of the teeth have been entirely worn away to below the enamel line, but the bases of the teeth have still continued to serve the aged owner, nature having blocked the pulp-cavities with dentine, thus guarding against the sensitiveness experienced by the white man when these nerve centers are exposed.

From the standpoint of human interest alone, the crania that have furnished the foregoing tables of anthropometrical

data are of considerable interest. There are few specimens that do not give some indication as to the individual or tribal life of former times. We pick up a skull at random and find a large, circular orifice in the right side, just above the ear. The fragments of bone from this opening are found within the cranial cavity. The parietal-frontal suture is open, and the left parietal bone is yawning. A part of the story is clear. This head had been bludgeoned in life, a terrific blow having been struck that burst the skull nearly asunder. The position of the orifice, moreover, shows that the blow had been delivered from behind. We have found several specimens of this kind, but whether these bludgeoned crania are evidence of the grim tragedies of war, or of legal executions, or of plain murder, we may only surmise. Other sanguinary incidents are suggested by finding broken bits of arrowheads, imbedded in various bones of the body.

Not a few of the crania exhibit evidences of the effect of neglect or accident at an early age of the individual. There lies before me the skull of a female of about twenty-five years of age. A clear break extends from the foramen magnum, diagonally to the center of the right parietal. The first cervical vertebra ("atlas bone") is firmly united with the occipital, no trace of the former joint being left. The posterior arch of the vertebra is broken and deformed. The story of this individual is, in part, very plain. During infancy, she had suffered a broken neck. She had recovered, but the attendant inflammation had induced the injured vertebræ to unite closely with the skull, leaving a permanently stiffened neck. People thus handicapped lack equilibrium and are prone to stumble. This woman, at the age of twenty-five, stumbled once too often, this time suffering a basal fracture. We are positive that death followed immediately after, as there is no evidence of even a start in the healing process.

I will give one other example of these mute stories of the past. In the midst of a densely occupied cemetery near the mouth of Tecolote Canyon, I one day chanced upon a grave that awakened more than usual interest. A skeleton lay in the conventional flexed position. Surrounding it was the greatest accumulation of almost indescribable materials that it has been my fortune to discover. In the common parlance of today, it

would all have been classed as "junk." There were uncounted pieces of broken stoneware that had been handled until the fractures were worn smooth. There was a heap of irregular flakes of flint, and another heap containing a few beads that had been in a string, alternating with almost countless rough fragments of shell; a few of these were roughly pierced, but the majority had been stuck on a necklace in a slovenly manner with asphaltum. There were also present many of the larger bones of animals, all worn smooth by long handling.

I was at first greatly puzzled by this accumulation, but after an examination of the skull of the individual who had been favored with it, I became convinced that I had a key to the mystery. The cranium was forwarded to a specialist in cranial material. A portion of his report follows:

"The general lines suggest a congenital deformity, or at least the lack of proper attention after birth, helping to mold the skull to a symmetrical shape. Since the left side of the body is largely controlled from the right side of the brain, it would appear that this individual had a great development of the left side of his body, due to the great brain volume on the right. The right side of the body would in turn lack greatly in development, due to the small amount of brain quantity on the left side."

A brain which from birth had been malformed to such an extent was, in all probability, incapable of normal mental functions. Is it not probable that the personal belongings of this man, found in his grave, give a fair reflection of his aberrant tastes?

Studying the scores of skeletons before us, it is not difficult to realize that here was a people who were intensely human in their every walk of life.

The various problems that confront the archaeologist include not a few that require for their solution the wholehearted co-operation of specialists in other lines of research. Of these collaborators the medical fraternity are perhaps leading in the new-found interest which they have taken in the skeletal remains of pre-historic man. This interest is well based, for is it not reasonable to suppose that disease, found in races living close to nature, may be much more readily traced to its source than where people are living the complex lives of the present?

## SUMMARY OF ISLAND FAUNA [*Dickey*]

THE presence of a few species of land mammals upon the Channel Islands throughout the time of Indian occupancy, as indicated by their remains in the refuse heaps, and the occurrence there of living members of some of the forms thus preserved, calls for an explanation of their presence upon these isolated bits of land.

The writer has had the aid of Mr. Donald R. Dickey, of the California Institute of Technology, an authority on the mammalogy of this region. There follows a summary of his deductions, based upon the material taken by our expedition from the kitchen middens, and from living forms from the islands, compared with material from adjacent territory.

At present the best known indigenous mammal is the Island Fox, *Urocyon littoralis*. This animal may be distinguished at a glance from the species found upon the adjacent mainland. It occurs upon the principal coastal islands, from San Clemente on the south to San Miguel on the north, with only slight differences between the types on the various islands. The characters that distinguish this species from its mainland congeners are several and very marked. Among them are color, dentition, muscular development and fecundity, but above all, size.

Every specimen recovered from the ancient debris heaps conforms very closely to those of the living forms, indicating that the present island type of fox had become standardized previous to the advent of the first Indians upon the islands. The fact that no remains of this type of fox have ever been found upon the mainland goes a long way to prove that the animal was not introduced by the Indians. There does, however, exist a very evident kinship between the Island Fox and the adjacent mainland form.

There appears to be but one explanation of the origin of this island type. At the time of the subsidence of the great coastal tract that at one time rounded out the shores of southern California, there had been preserved a few foxes in the hills that were later to be known as the Channel Islands. At that time these isolated specimens probably differed in no particular from

those that still occupied the mainland. There were, however, entirely new conditions surrounding them. No new blood could be brought in from the outside, and as a consequence very close inbreeding was inevitable. The food supply lacked the variety to which the fox of the mainland was accustomed, this being especially noticeable in the total absence from the islands of the larger rodents which upon the mainland furnish an abundance of warm-blooded nutriment.

The absence of the jack rabbit eliminated the activity of the chase and the necessity of overcoming prey nearly as powerful as themselves. As a consequence, their muscular development diminished, until the group finally acquired the small and comparatively delicate form of the Island Fox. Their diet being confined almost exclusively to mice, small birds, and an occasional dead fish, they no longer required the energetic mastication to which the mainland species had been accustomed, and as a result the dentition is very weak as compared with that of the mainland fox. In the course of thousands of years these characteristics became fixed and a new species had appeared.

In the case of the small Spotted Skunk of the islands we are faced by another problem of biology. On Santa Rosa Island we find a well-established, uniform type of this animal that conforms closely in all essential characteristics to the well-known California Spotted Skunk, *Spilogale phenax phenax* Merriam, of the northern district of California, but differs noticeably from the Spotted Skunk of the adjacent mainland. Mr. Dickey points out that this situation may be explained by the following hypothesis.

The skunk, being a more primitive, omnivorous form than the fox, would tend to respond more slowly than this animal to a change of environment, since it would continue to have practically the same food and climatic conditions on the islands that had always furnished it with abundance when it was accustomed to a wider range.

There remains the problem of this type being found isolated at a part of the coast so far south of its present range upon the mainland. We know that up to the time of the subsidence that created the present channel, the climate of this region was quite different from that of the present. Rains fell with much more frequency, and forests of pine and fir covered large areas. The

region in the vicinity of what is now the Santa Barbara Channel, at that time, in all probability possessed a climate and flora which differed little from that now enjoyed by the Bay region. It is natural to suppose that the fauna of that day also was similar to that with which we are now acquainted farther north.

A change of climate followed the subsidence of the channel area. The rain decreased in frequency and volume. The forests all but disappeared and a semi-desert condition prevailed. We could hardly expect the characteristic fauna of the past to retain its place under the new conditions and find in fact that it did not. Following the retreat of the rain belt and the Monterey Pine, there also probably passed northward the little Spotted Skunk, and in its place there came a modified form more closely akin to the sub-species found in the warm, barren, near-desert region to the southeast. It is as though, after the subsidence of the channel, there had been a regular progression to the north of climate, flora and fauna that had formerly been confined to the vicinity of what is now the Mexican border.

Meanwhile the colony of skunks confined to the islands could not experience the replacements that were taking place upon the mainland. We therefore find upon the islands a small group of animals which have persistently retained the characteristics that were probably once common in the surrounding region, while upon the nearby mainland is now to be found only an intrusive variety closely akin to the type found farther south and east.

Of the third class of mammals, the mice, there is at present much less to be said. Of two points concerning them we are quite certain. They are the only representatives of the *Rodentia* known to be indigenous to the Channel Islands, and they are numerically much better represented than are any of the other forms. All of the mice belong to the species *Peromyscus maniculatus*, or are at least very closely related to that species. They all differ from the mainland stock, so that it is extremely improbable that they were introduced on the islands through the agency of the Indian's canoes, unless that occurred at an incredibly early date. I am positive that at least sub-specific differences exist between the groups from different islands. The work of an entire season lies waiting here for a patient student of mammals.

The fourth in the list of land-mammal remains that were found in the refuse heaps of the islands were scattered fragments

which I tentatively classified as ungulate material. This material fell under two heads, fragments from the lower bones of the legs and fragments of antlers. Mr. Dickey gave all of this material most careful attention and decided without hesitation that each fragment had once belonged to a race of the Mule Deer, *Odocoileus hemionus*, which now frequents the adjacent mainland.

The almost complete absence of any remains of this animal except those mentioned appears to argue strongly that these are not to be considered as food refuse of either indigenous animals or those brought from the mainland. These vestiges, Mr. Dickey points out, are of the kind that were in constant demand for the making of the most cherished implements, the awls, needles, bodkins, etc., and he calls attention to the fact that many of the artifacts found upon the islands are formed from similar bones, and that the bones from the refuse heaps in some instances show where the choicest parts have been removed, presumably for making similar implements.

Briefly to summarize his conclusions, until other parts of the deer are found in quantity in the island refuse heaps, we must conclude that venison was practically unknown there. Leg bones and antlers required in the manufacture of implements were obtained through the regular avenues of barter, much as were flakes of obsidian and other extraneous commodities.

The fifth mammal to be taken under study by Mr. Dickey was the dog. To scientists the Indian dog has ever been an enigma. The animal of the area now comprised within the United States is now probably extinct, but we have casual mention of it by early explorers and others, and also the evidence afforded by remains found in refuse heaps and cemeteries. From this evidence a few facts are clearly established. Two distinct types of dogs are known to have followed the fortunes of the Indians of at least some of the tribes. There was first the large powerful brute that doubtless accompanied hunters to assist in the taking of game, and secondly, the noisy camp-dog, varying from medium to small in size. In the latter of these forms there is no suggestion of the Husky nor of the wolf. It is not difficult to account, theoretically, for these forms. For the base stock we may simply assume that it has accompanied man from the earliest times. Having been present with the an-

cestors of the Indians in their homes in Central Asia, it accompanied them in their subsequent migrations.

During the long trek across the arctic barrens to its final home in America, the dog probably became somewhat modified. Through the inherent tendency of mankind to bring wild animal cubs to his home, we may assume that an occasional Grey Wolf became domesticated by the Indians and this, under favorable circumstances, may have given a wolfish strain to their dogs. As a whole these were but minor modifications and were absorbed without leaving much to indicate their presence. As we find them, these animals are preeminently dogs, not wolves, remarkable for a dentition destined to hold, not slash, and a frontal brain development that far transcends anything present in any of the wild canines of North America.

The conditions that I have outlined in the dog populations of the Indian encampments at large, Mr. Dickey finds to have been present to a marked degree upon the Channel Islands, except that remains of the small dog have not yet been detected there. Numerous dog remains unearthed by our expedition reveal the existence in abundance of a large and remarkable stable type of powerful hunting or camp-guard dog. If the Indians of the islands had also the smaller type of camp pet, its presence has escaped us.

It may also be of interest to note that, among the remains of sea mammals found in the middens, three species, the Guadalupe Fur Seal, *Arctocephalus townsendi*, the Elephant Seal, *Mirounga angustirostris*, and the Sea Otter, *Enhydra lutris*, have now become, through the agency of white fur hunters, practically extinct in the region of the Channel Islands.

(NOTE:—One other indigenous mammal is present on the Islands, at least upon Santa Cruz. At dusk, bats are frequently seen flying about the mouths of canyons. I find no mention of these in scientific reports and believe that they are undescribed.)

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